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ABSTRACT

This handbook presents position statements from the National Council of Teachers of Mathematics (NCTM) in detail. Topic areas for which position statements are provided include Calculators and the Education of Youth, Early Childhood Mathematics Education, Evaluation of Teacher Performance, Guiding Students' Attitudes and Decisions Regarding Their Mathematics Education, The Mathematics Education of Underrepresented Groups, the Mathematics for Second-Language Learners, Mathematics Leaders in Elementary/Middle Schools, Mathematics Leaders in Secondary Schools, Metrication, Professional Development of Teachers of Mathematics, Research in Mathematics Education, Teaching Mathematics in the Middle Grades, and The Use of Technology in the Learning and Teaching of Mathematics. A general description of NCTM, a discussion of the organization's mission and goals, and a list of officers, directors, committes, and representatives are included. (ASK/NB)

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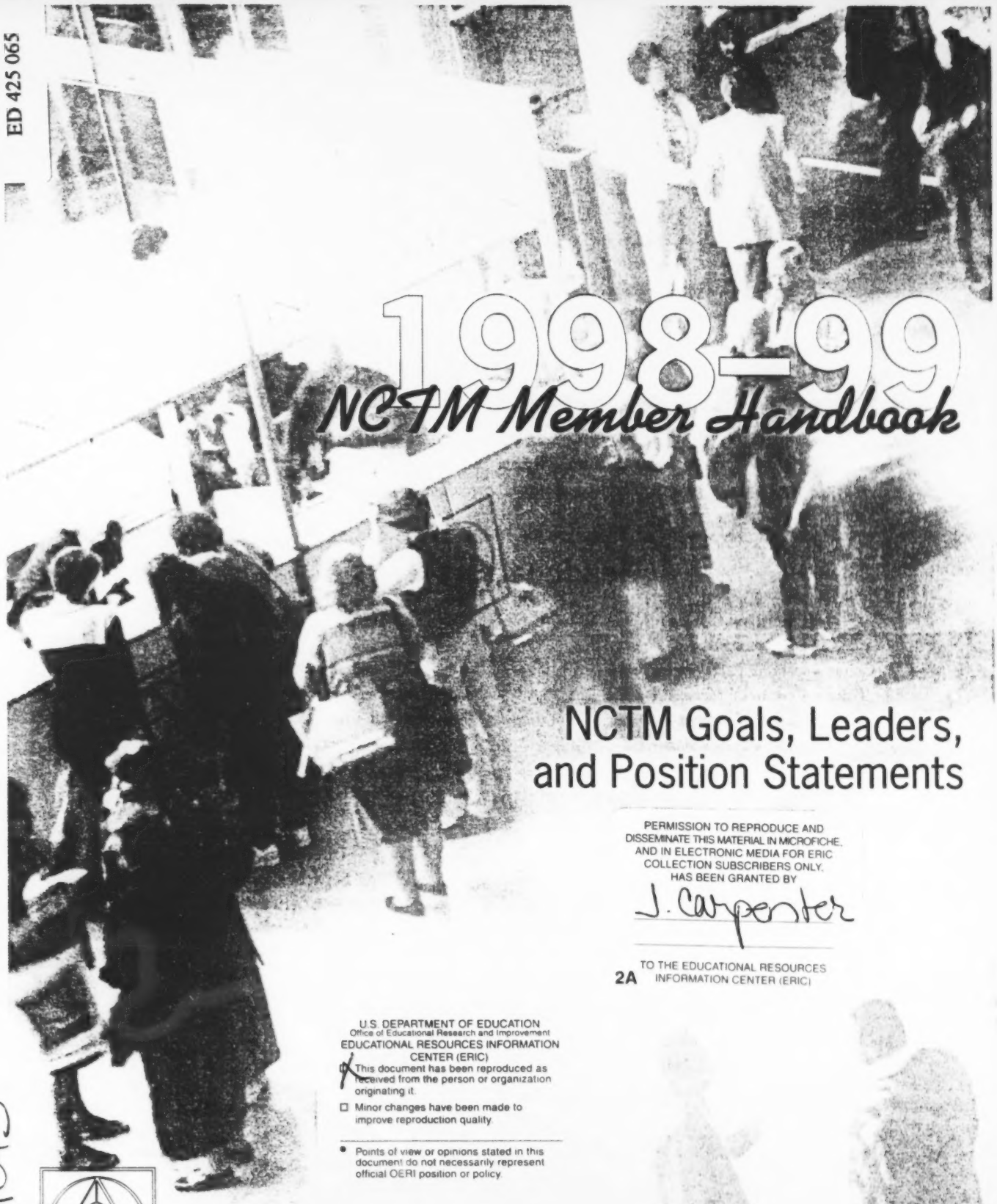

1998–99 NCTM Member Handbook

NCTM Goals, Leaders, and Position Statements

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National Council of Teachers of Mathematics

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The National Council of Teachers of Mathematics

For more than 75 years, the National Council of Teachers of Mathematics (NCTM) has been dedicated to improving the teaching and learning of mathematics. It is a recognized leader in efforts to ensure an excellent mathematics education for all students and an opportunity for every mathematics teacher to grow professionally.

With about 110 000 members, NCTM is the largest nonprofit professional association of mathematics educators in the world. NCTM offers vision, leadership, and avenues of communication for mathematics educators at the elementary school, middle school, high school, and college and university levels.

NCTM provides professional development opportunities through annual, regional, and leadership conferences and publishes journals, books, videos, and software.

As a professional association, NCTM derives its strength from its members, who are drawn from the broad community of stakeholders in the fields of mathematics and mathematics education. Members participate in the work of approximately 70 national committees and task forces and contribute to all aspects of the Council's work.

NCTM at a Glance

- Founded in 1920, the National Council of Teachers of Mathematics is dedicated to improving mathematics teaching and learning from preschool through postsecondary school.
- With about 110 000 members and more than 260 Affiliated Groups throughout the United States and Canada, NCTM is the world's largest mathematics education organization.
- NCTM's three *Standards* documents laid the foundation for excellence in mathematics education:

  The *Curriculum and Evaluation Standards for School Mathematics* (1989) presents recommendations for improving and updating the mathematics curriculum and the evaluation of students' achievement.

  The *Professional Standards for Teaching Mathematics* (1991) offers specific suggestions for how mathematics teachers can create successful learning environments for every student and promote their own professional growth.

  The *Assessment Standards for School Mathematics* (1995) describes ways to have a comprehensive mathematics assessment program and provides criteria for judging the quality of mathematics assessment.
- NCTM's Addenda Series brings the message of the *Standards* documents to the classroom. This 22-book series includes suggestions for classroom activities, for the evaluation of students' skills, and for uses of technology that teachers can consider in planning their lessons.
- NCTM publishes four professional journals—*Teaching Children Mathematics, Mathematics Teaching in the Middle School,* the *Mathematics Teacher,* and the *Journal for Research in Mathematics Education*—along with the *NCTM News Bulletin, Student Math Notes, Mathematics Education Dialogues,* and more than 200 educational books, videos, and other materials.
- NCTM's Mathematics Education Trust (MET) provides funds directly to teachers to enhance the mathematics education provided to all students. MET offers seven grant and scholarship programs and one lifetime achievement award program.
- The Council holds an annual meeting and eight to ten regional meetings each year, at which teachers of mathematics and others interested in mathematics education can attend lectures, panel discussions, and workshops and can see exhibits of the latest mathematics education materials and innovations.
- NCTM sponsors annual events, such as Mathematics Education Month and the World's Largest Math Event, that promote the value of mathematics.
- NCTM's World Wide Web site, www.nctm.org, offers information about publications, professional development opportunities, jobs, new products, and NCTM and its programs.
- NCTM's Fax-on-Demand service, (800) 220-8483, provides around-the-clock access to NCTM documents and information.

NCTM Statement of Beliefs

As the primary professional organization for teachers of mathematics in grades K–12, the National Council of Teachers of Mathematics (NCTM) has the responsibility to provide broad national leadership in matters related to mathematics education.

In meeting this responsibility, NCTM has developed a set of standards for school mathematics that address content, teaching, and assessment. These standards are guidelines for teachers, schools, districts, states, and provinces to use in planning, implementing, and evaluating high-quality mathematics programs for kindergarten through grade 12.

The NCTM *Standards* are based on a set of core beliefs about students, teaching, learning, and mathematics.

We believe the following:

- Every student deserves an excellent program of instruction in mathematics that challenges each student to achieve at the high level required for productive citizenship and employment.
- Every student must be taught by qualified teachers who have a sound knowledge of mathematics and how children learn mathematics and who also hold high expectations for themselves and their students.
- Each school district must develop a complete and coherent mathematics curriculum that focuses, at every grade level, on the development of numerical, algebraic, geometric, and statistical concepts and skills that enable all students to formulate, analyze, and solve problems proficiently. Teachers at every grade level should understand how the mathematics they teach fits into the development of these strands.
- Computational skills and number concepts are essential components of the mathematics curriculum, and a knowledge of estimation and mental computation are more important than ever. By the end of the middle grades, students should have a solid foundation in number, algebra, geometry, measurement, and statistics.
- Teachers guide the learning process in their classrooms and manage the classroom environment through a variety of instructional approaches directly tied to the mathematics content and to students' needs.
- Learning mathematics is maximized when teachers focus on mathematical thinking and reasoning. Progressively more formal reasoning and mathematical proof should be integrated into the mathematics program as a student continues in school.
- Learning mathematics is enhanced when content is placed in context and is connected to other subject areas and when students are given multiple opportunities to apply mathematics in meaningful ways as part of the learning process.
- The widespread impact of technology on nearly every aspect of our lives requires changes in the content and nature of school mathematics programs. In keeping with these changes, students should be able to use calculators and computers to investigate mathematical concepts and increase their mathematical understanding.
- Students use diverse strategies and different algorithms to solve problems, and teachers must recognize and take advantage of these alternative approaches to help students develop a better understanding of mathematics.
- The assessment of mathematical understanding must be aligned with the content taught and must incorporate multiple sources of information, including standardized tests, quizzes, observations, performance tasks, and mathematical investigations.
- The improvement of mathematics teaching and learning should be guided by ongoing research and by ongoing assessment of school mathematics programs.

Changing mathematics programs in ways that reflect these beliefs requires collaborative efforts and ongoing discussions among all the stakeholders in the process. NCTM stands ready to work with all those who care about improving mathematics education for all students. Through such dialogue and cooperative efforts, we can improve the mathematical competence of the students in mathematics classes across the continent.

Questions and Answers

Answers to Questions about Mathematics Education

Improving the teaching and learning of mathematics has been a slow and uneven process. But each year we see signs of progress in schools where the National Council of Teachers of Mathematics (NCTM) *Standards* are used as a guide. Students' scores are up. More students are taking—and succeeding in—higher-level mathematics programs. More students are mastering mathematical skills. And more students are gaining the mathematical understanding they need to carry forth to the twenty-first century.

But the road to change is rugged and full of twists and turns. The questions that arise about where we are going and why we are going there are good ones. Answering them helps us check our course and renew our determination. You may have questions yourself, or you may want to have better answers to questions from your students' parents, your colleagues and administrators, and even business, political, and community leaders. So below are some questions and answers—your road map—that might help explain the journey we've undertaken to improve mathematics education.

Q Why change mathematics education?

A Because our mathematics needs have changed. Over the past decades, we have seen changes in mathematics and its uses, changes in the role of technology, changes in the needs of society, changes in international competitiveness, and changes in what we know about how students learn. In this new world, we need to redefine the way we prepare our children to understand and use the power of mathematics.

Q What are the NCTM *Standards*?

A The NCTM's *Curriculum and Evaluation Standards for School Mathematics* (1989), *Professional Standards for Teaching Mathematics* (1991), and *Assessment Standards for School Mathematics* (1995) are guidelines for excellence in mathematics education. They make recommendations about what mathematics students should learn, what classroom practice should be, and what guidelines can be used to judge student performance and evaluate the effectiveness of mathematics programs. The NCTM *Standards* envision rich mathematics opportunities and high achievement for all children in all mathematics classrooms.

NCTM is in the process of updating the *Standards* to reflect the changes that have taken place since the publication of the three original documents. These include changes in what we know about how students learn and changes in technology. The general direction and message of the original *Standards* will remain in the updated document, *Principles and Standards for School Mathematics.* An interactive electronic draft of the document is also being released. The updating process will continue through early 1999, and a final version will be published in spring 2000. For information on requesting a copy of or providing feedback on the draft, see NCTM's Web site, www.nctm.org/standards2000/ or the October *News Bulletin,* or call (888) 220-7952.

Q What changes do the NCTM *Standards* propose?

A The NCTM *Standards* reflect the importance that society places on reasoning and problem solving and research in how children learn. The *Standards* recommend strengthening mathematics teaching and learning by shifting practice in multiple areas:

- **Curriculum**—shifting toward a deeper study of mathematical concepts and a broader study of mathematical content areas, along with their uses in today's world
- **Learning**—shifting toward more active student involvement with mathematics and the use of a variety of appropriate mathematical tools for solving problems
- **Teaching**—shifting toward creating classrooms that are stimulating learning environments in which all students have the opportunity to reach their full mathematical potential
- **Assessment**—shifting toward assessment that is ongoing, continuous, and multifaceted

On what foundation are the NCTM *Standards* based?

The NCTM *Standards* are based on research and our increased knowledge about how children learn. For example:

- **Mathematics content**—the emerging views of the mathematics all students should know are based on such reports as *Renewing U.S. Mathematics, Mathematics in American Schools,* and *New Goals for School Mathematics.*
- **Student learning**—research on how students learn has been summarized in the chapters in *Handbook of Research on Mathematics Teaching and Learning* and the chapter on mathematics in *Handbook of Educational Psychology.*
- **Teaching methods**—research on the benefits derived when teachers emphasize lessons designed to promote student understanding, conducted by the Center for Research on Teaching, is discussed in the *Handbook of Research on Mathematics Teaching and Learning.*
- **Assessment**—research that supports the shift in assessment—from a measurement approach developed to compare students on the basis of their answers to a set of brief questions toward a performance-criteria approach designed to determine growth in each student's ability to solve nonroutine problems—is summarized in *Toward a New Science of Educational Testing and Assessment, Mathematics Assessment and Evaluation: Imperatives for Mathematics Education,* and *Reform in School Mathematics and Authentic Assessment.*

As projects based on the NCTM *Standards* evolve, data are being collected showing the positive effects on students' achievement.

(A more complete description of this research may be obtained from the NCTM Headquarters Office—NCTM, Infocentral, 1906 Association Drive, Reston, VA 20191-1593, or Fax on Demand, 800-220-8483, document #207.)

What should I see in a *Standards*-based mathematics classroom?

First and foremost, you'll see students doing mathematics. But you'll see more than just students completing worksheets. You'll see students interact with one another, use other resources along with textbooks, apply mathematics to real-world problems, and develop strategies to solve complex problems.

Teachers still teach. The teacher will pose problems, ask questions that build on students' thinking, and encourage students to explore different solutions. The classroom will have various mathematical and technological tools (such as calculators, computers, and math manipulatives) available for students to use when appropriate. The teacher may move among the students to understand their thinking and how it is reflected in their work, often challenging them to engage in deeper mathematical thinking. The teacher will regularly encourage students to think carefully about the mathematics in one situation and make connections to other ideas within mathematics and other disciplines. The teacher will summarize the mathematics that has been studied and clarify the students' understanding of the mathematics in the lesson.

There are many models of *Standards*-based classrooms, but the focus will always be on students' learning and doing high-quality mathematics.

Q Do the NCTM *Standards* support teaching the "basics"?

A Absolutely. The NCTM *Curriculum and Evaluation Standards for School Mathematics* clearly and unequivocally states that students should "model, explain, and develop reasonable proficiency with basic facts and algorithms" (p. 44). Computational proficiency has always been, and will continue to be, an integral part of mathematics education. Yet computational proficiency alone is not enough. To be successful in today's world, students need proficiency with basic facts, and they must be adept in reasoning, in problem solving, and in communicating mathematics. They must also have the ability to make mathematical connections, and they must be able to use their computational skills to apply mathematics to problems in other disciplines.

Q What is the role of technology in a *Standards*-based classroom?

A A comprehensive mathematics curriculum should help students learn to use calculators, computers, and other technological tools. These tools are used in many aspects of their education and influence how they study mathematics, science, or engineering in college or how they will do mathematics in the workplace. It would be remiss not to make their use a part of contemporary mathematics education.

The *Curriculum and Evaluation Standards for School Mathematics* makes it clear, however, that such tools "do not replace the need to learn basic facts, to compute mentally, or to do reasonable paper-and-pencil computation" (p. 19). The *Standards* also suggest that when used appropriately, calculators and computers enable students to explore new areas of mathematics and to tackle many challenging mathematical problems that are impractical to attempt without the aid of such tools. Indeed, calculators and computers with appropriate software can transform the classroom into a laboratory where students can investigate and experiment with mathematical ideas.

Q What is the role of textbooks in mathematics education?

A This is one issue on which many people have misunderstood the position of the NCTM *Standards*. Every school should have a coherent, coordinated curriculum. A good mathematics textbook is almost always an essential element in implementing that curriculum.

The NCTM *Curriculum and Evaluation Standards for School Mathematics* stresses that the textbook should not be the exclusive source of knowledge (p. 129); rather, a textbook should be one of many resources available to students. A good textbook, in conjunction with other rich curriculum materials, will help the teacher emphasize important mathematical ideas and move beyond routine instruction on procedures and vocabulary to having students apply these mathematical ideas and use them to solve challenging problems.

Q What are the changes in assessment?

A Teachers should not rely on paper-and-pencil tests and timed drills as their only means to judge students' performance because doing so will not provide a complete picture of most students' mathematical knowledge and ability. Students should be given ample opportunity to demonstrate their mathematical understanding through a variety of methods, including portfolios, discussions, presentations, and projects in addition to the traditional approach of written tests. This variety enables teachers to review, assess, and gauge students' progress.

Q How can we engage all students in mathematics?

A The NCTM *Standards* issue a call for *all* students to engage in higher levels of mathematics. All students should have the same opportunities to learn the same mathematics. All students should have

equitable opportunities to use the same resources, including appropriate technology, to engage in mathematical thinking and reasoning and to become involved with tasks that are challenging and focused on good mathematics and that encourage further learning.

Q Why should parents become involved in improving mathematics education, and what role can they play?

A A survey by *Money* magazine found that the amount of support received from parents and the community was the most important factor in academic excellence in the best school districts in the country. The importance of parent and community support should not be underestimated.

Parents should work with teachers to understand the mathematical goals for the classroom, how these goals will be measured, and the ways in which parents can further mathematical understanding at home. Parents can support their children's mathematics education by looking for ways to link mathematics to daily activities. By becoming active partners in the homework process, parents can increase students' confidence in their mathematics abilities and encourage students to value mathematics and to continue their learning.

Q What do U.S. business leaders have to say about the future of mathematics education?

A U.S. business leaders recognize that what was traditionally known as shopkeeper's arithmetic is insufficient in the Information Age. They have repeatedly reported the need for employees who can think and communicate mathematically, who can solve problems, and who can work in teams as well as alone. *Strengthening Your Child's Academic Future,* published by the Education Excellence Partnership (a consortium of business and education organizations), states, "Unlike ten or fifteen years ago, we now live in a world of computers, Web sites, and international competition. In a number of other countries and American communities, academics are more rigorous and challenging, and their students graduate better prepared to compete in our increasingly complex world. In order for your child to succeed in school, at work and in the community, he or she will need more skills and knowledge than ever before." According to the Partnership, "raising academic standards will help your child succeed in today's increasingly competitive world." The NCTM *Standards* establish those high, rigorous standards for mathematics excellence.

Q Do the NCTM *Standards* represent a national curriculum?

A No. The NCTM *Standards* are not a national curriculum; rather, they provide a framework for teaching, learning, and assessing mathematics that can be used by states and local school districts to shape their own mathematics curriculum.

Conclusion

There have never been "good old days" for mathematics education. Today, many more students can and must attain a level of mathematics understanding traditionally reserved for only a few. That is why we must move forward in our efforts to ensure that all students receive a rigorous, high-quality education in mathematics.

For a complimentary copy of NCTM's *Mathematics: Making a Living, Making a Life,* contact the NCTM Headquarters Office at (703) 620-9840, ext. 2113, or send your request by e-mail to infocentral@nctm.org.

Mission and Goals

Mission

The mission of the National Council of Teachers of Mathematics is to provide vision and leadership in improving the teaching and learning of mathematics so that every student is ensured an equitable *Standards*-based mathematics education and every teacher of mathematics is ensured the opportunity to grow professionally.

Goals

Goal 1: To foster excellence in school mathematics curricula, instruction, and assessment

1.1 Develop, disseminate, monitor, and update standards for curriculum, instruction, and assessment in mathematics.

1.2 Develop and promote models of curricula, instruction, and assessment in mathematics.

1.3 Offer assistance to states, provinces, and local districts in developing curricula, instruction, and assessment consistent with the *Standards*.

1.4 Promote the integration of current technologies and other tools for learning into mathematics curricula, instruction, and assessment.

Goal 2: To create a climate throughout the Council that demonstrates respect for, and a valuing of, diversity

2.1 Continue efforts to achieve equity in mathematics education.

2.2 Appoint committees and task forces and nominate prospective Board members so as to reflect the diversity in the Council.

2.3 Ensure that publications of the Council reflect the diversity of the Council.

Goal 3: To stimulate students' interests, confidence, and learning in mathematics

3.1 Encourage and support students' participation in extracurricular mathematics activities, such as clubs and field days.

3.2 Promote the involvement of communities, families, and caregivers, including counselors, in students' mathematical education.

3.3 Develop products that can be used directly with students to enhance their mathematical growth.

3.4 Help teachers capitalize on student diversity to enrich their students' mathematics experiences both in and outside the classroom.

Goal 4: To strengthen leadership in, and service to, mathematics education

4.1 Recruit potential leaders and provide and promote leadership opportunities in schools, in regions, and in the Council for teachers from diverse groups.

4.2 Improve communication among NCTM, its membership, and others in the mathematics education community.

4.3 Advocate the involvement of mathematics specialists and other teachers in the development and improvement of curricula, instruction, and assessment at all levels, pre–K through college.

Goal 5: To foster excellence in professional development throughout the preparation and the career of teachers of mathematics at all levels, pre–K through college

5.1 Develop, disseminate, monitor, and update standards for the professional development of teachers of mathematics.

5.2 Improve the preparation and post-baccalaureate education of mathematics teachers.

5.3 Improve the ongoing professional development of mathematics teachers.

5.4 Encourage adequate support for professional development programs for mathematics teachers.

5.5 Validate and disseminate models for effective professional development programs for mathematics teachers.

5.6 Identify, adapt, and disseminate appropriate professional development strategies used by other educational organizations.

5.7 Provide professional development through publications, meetings, and other means.

5.8 Form partnerships with Affiliated Groups to help meet the ongoing professional development needs of mathematics teachers in specific regions.

Goal 6: To encourage research and development in mathematics education

6.1 Encourage and support programs of research and policy studies in teaching and learning mathematics, professional development, curriculum, and assessment.

6.2 Facilitate the development and dissemination of a research base for mathematics education reform.

6.3 Catalyze needed research involving, or requiring interaction among, various groups interested in mathematics education.

6.4 Disseminate implications of mathematics education research particularly as it relates to the implementation of best practices in the classroom.

Goal 7: To identify and influence the forces of change affecting mathematics education

7.1 Develop strategies to predict and address the future in curricular and political areas affecting mathematics education.

7.2 Acknowledge and address issues of diversity in mathematics education.

7.3 Help political groups and administrators understand the complexity and cost of excellence in mathematics education.

7.4 Suggest appropriate forms of family and community involvement in, and support of, mathematics programs and teachers.

7.5 Promote the establishment and maintenance of sources of funding for mathematics education research and development, curriculum, instruction, assessment, and professional development.

Goal 8: To collaborate and communicate with groups having interests related to excellence in mathematics education

8.1 Participate in decision-making processes that affect mathematics education at the regional, national, and international levels.

8.2 Work with Affiliated Groups as partners to address issues in mathematics education at local, state or provincial, and national levels.

8.3 Identify services that should be provided by NCTM directly; by NCTM in collaboration with other organizations, including Affiliated Groups; or by other organizations.

8.4 Foster collaboration with users of mathematics and with organizations involved in such areas as research, education, and the mathematical sciences.

8.5 Develop cooperative programs in mathematics education with businesses, industries, and private or public agencies.

8.6 Build communication networks and forums to share information about mathematics education reform.

8.7 Participate in discussions and activities related to education issues that affect mathematics education, such as inclusion, school-to-work, site-based management, and reform efforts in other disciplines.

(February 1995)

The "Every Child" Statement

As representatives of a professional organization and as individuals within that organization, the Board of Directors sees the comprehensive mathematics education of every child as its most compelling goal.

By "every child," we mean every child—no exceptions.

We are particularly concerned about students who have been denied access to education opportunities for any reason, such as language, ethnicity, physical impairment, gender, socioeconomic status, and so on. We emphasize that "every child" includes—

- learners of English as a second language and speakers of English as a first language;
- members of underrepresented ethnic groups and members of well-represented groups;
- students who are physically challenged and those who are not;
- females and males;
- students who live in poverty and those who do not;
- students who have not been successful and those who have been successful in school and in mathematics.

The Board of Directors commits the organization and every group effort within the organization to this goal.

Position Statements

NCTM position statements define a particular problem, issue, or need and describe its relevance to mathematics education. Each statement defines the Council's position on the issue and suggests a course of action. The NCTM Board of Directors approves all position statements. The date in parentheses at the end of each position statement refers to the approval date.

Calculators and the Education of Youth

The National Council of Teachers of Mathematics recommends the integration of calculators into the school mathematics program at all grade levels.

Appropriate instruction that includes calculators can extend students' understanding of mathematics and will allow all students access to rich problem-solving experiences. Such instruction must develop students' ability to know how and when to use a calculator. Skill in estimation, both numerical and graphical, and the ability to determine if a solution is reasonable are essential elements for the effective use of calculators.

Assessment and evaluation must be aligned with classroom uses of calculators. Instruments designed to assess students' mathematical understanding and application must acknowledge students' access to, and use of, calculators.

Research and experience support the potential for appropriate calculator use to enhance the learning and teaching of mathematics. Calculator use has been shown to enhance cognitive gains in areas that include number sense, conceptual development, and visualization. Such gains can empower and motivate all teachers and students to engage in richer problem-solving activities.

Therefore, the National Council of Teachers of Mathematics makes the following recommendations:

- All students should have access to calculators to explore mathematical ideas and experiences, to develop and reinforce skills, to support problem-solving activities, and to perform calculations and manipulations.
- Mathematics teachers at all levels should promote the appropriate use of calculators to enhance instruction by modeling calculator applications, by using calculators in instructional settings, by integrating calculator use in assessment and evaluation, by remaining current with state-of-the-art calculator technology, and by considering new applications of calculators to enhance the study and the learning of mathematics.
- School districts should provide professional development activities that enhance teachers' understanding and application of state-of-the-art calculator technology.
- Teacher education institutions should develop and provide preservice and in-service programs that use a variety of calculator technology.
- Those responsible for the selection of curriculum materials should remain cognizant of how technology—in particular, calculators—affects the curriculum.
- Authors, publishers, and writers of assessment, evaluation, and mathematics competition instruments should integrate calculator applications into their published work.
- Mathematics educators should inform students, parents, administrators, school boards, and others of research results that document the advantages of including the calculator as one of several tools for learning and teaching mathematics.

(July 1998)

Early Childhood Mathematics Education

The National Council of Teachers of Mathematics believes that early childhood mathematics education, for young children aged three to eight, should be developmentally appropriate. Developmentally appropriate instructional practices are those in which the mathematics learning environment takes into account the social, emotional, physical, and intellectual needs of young children. Since young children actively construct knowledge, instruction should concentrate on facilitating learning through exploration and interaction with materials and people. In early childhood mathematics, how and when the curriculum is taught is as important as what is taught. Thus, endorsing a developmental philosophy for early childhood mathematics education suggests reorganizing classroom practices around the total child rather than allowing materials and rigid time lines to dictate instruction. Furthermore, early childhood mathematics instruction should foster a positive environment, provide equal access for all children, and account for cultural and ethnic diversity.

Therefore, the National Council of Teachers of Mathematics recommends developmentally appropriate curriculum and evaluation guidelines for early childhood mathematics instruction that have the following aims:

- Acknowledge and build on children's accumulated knowledge by including children's experiences, language, and relevant real-world contexts.
- Incorporate active and interactive learning. Children's understandings develop as they explore, investigate, and discuss mathematical concepts. Physical and mental interactions with the environment, materials, and other individuals give children opportunities to construct, modify, and integrate their ideas.
- Offer opportunities for children to develop and expand language acquisition while structuring, restructuring, and connecting mathematical understandings. Concepts should be repeatedly experienced through concrete, visual, verbal, and pictorial formats. Gradually, children should be encouraged to translate and record their experiences in more abstract representations.
- Be concept and problem solving oriented. The classroom environment should provide for the regular study of mathematics focusing on the development and integration of mathematical thinking, reasoning, understandings, and relationships through concrete problem-solving experiences. Mathematical concepts should be integrated with other subject areas, making use of natural connections wherever they occur.

- Develop children's confidence in their mathematical abilities. Varied instructional strategies, meaningful child-related contexts, and opportunities for active participation in the learning process encourage children to become capable mathematical thinkers and to believe in themselves as such.
- Include ongoing assessment. Teachers should make instructional decisions that are based on the progress of the children in their classroom. Children's progress is determined through information obtained from formal and informal assessment of each child's individual pattern of growth. Evaluation strategies such as observations, interviews, and portfolios give evidence of children's thinking processes and their understanding of concepts.

The National Council of Teachers of Mathematics recommends that those who produce, select, and purchase young children's mathematics curriculum materials support developmentally appropriate early childhood mathematics programs. Guidelines for early childhood mathematics education encourage a child-centered approach to instruction. Preference should be given to mathematical learning environments that support active participation where children learn through observation, exploration, verbalization, and hands-on experiences. The focus of instruction should be on the continuous development of mathematical processes and language through activities that gradually increase in difficulty, complexity, and challenge as children develop understanding and skills. Developmentally appropriate early childhood mathematics instruction should meet the needs of individual learners at different stages of readiness by considering the influences of cultural backgrounds, prior experiences, learning styles, and cognitive abilities. (February 1991)

Evaluation of Teacher Performance

Increasing demands for accountability have led state and provincial legislatures and agencies, school districts, professional organizations, and teacher education institutions to expand their efforts to evaluate a teacher's knowledge and performance. Although such evaluations are often used as a basis for decisions about admission to teacher education programs, eligibility for certificates, or advancement in the profession, the most important purpose of evaluation is to connect a teacher's current teaching with the professional development necessary to enable that teacher to improve the teaching of mathematics.

Evaluation includes the identification of goals by the teacher and the evaluators, the collection of information, and a collaborative dialogue between the teacher and the evaluators to reformulate, redirect, and refine goals for the future. Goals for personal and professional growth may include some that are mandated by the state or province, district, teacher education institution, or individual school, but the teacher must be an active participant in identifying goals that improve instruction.

A comprehensive picture of both the purpose and the process for the evaluation of teaching is portrayed in the *Professional Standards for Teaching Mathematics,* prepared by the National Council of Teachers of Mathematics in 1991. The process begins by collecting data representative of the teacher's current practice. Data should be gathered from various sources, such as self-assessment, observations, interviews, peers, students, teacher's portfolios, supervisors, and administrators.

The use that is made of the information gained through the evaluation process is as important as the act of evaluation itself. The appropriate outcome of this ongoing process is a collaborative dialogue between the teacher and others involved in the process, resulting in a mutually agreed-on plan for professional growth.

Although the process of evaluating the effectiveness of teachers may be applicable across subjects and grade levels, the specific goals, criteria for observation, and resulting dialogue must be directly related to the content of mathematics and to the teaching strategies.

The evaluation team should have a deep knowledge of the vision of teaching presented in the *Professional Standards for Teaching Mathematics* and rooted in the mathematical content and processes described in the *Curriculum and Evaluation Standards for School Mathematics.* The team should represent expertise and experience in mathematics and the teaching of mathematics as well as in evaluation.

Therefore, the National Council of Teachers of Mathematics recommends that supervisors and administrators work closely with teachers to assure that the evaluation process is used to enhance the professional development of the teacher and increase the effectiveness of mathematics teaching. (April 1993)

Guiding Students' Attitudes and Decisions Regarding Their Mathematics Education

Educators, including parents, teachers, counselors, and administrators, are positioned to influence the formation of students' attitudes toward, and perceptions about, mathematics. These attitudes and perceptions are formed at an early age and reinforced by educators throughout the students' school years.

The following issues should be addressed at all levels:

- Equal access to the world of mathematics regardless of gender, ethnicity, or race
- The broad range of options available to students of mathematics
- That success in mathematics is more dependent on effort and opportunity to learn than on innate ability.

For students to succeed in their study of mathematics, they must believe that they can "do" mathematics and that it is worth "doing." Therefore, the National Council of Teachers of Mathematics believes the following statements should characterize student programs:

Elementary School Level
Young children enter school having natural interest, curiosity, and an eagerness to learn. As children move through the elementary school level, educators build on these attitudes, which support children's mathematical development. By connecting mathematics with real-life experiences, educators can help children not only understand mathematics but see its value and usefulness.

Middle School Level
During the middle school years, students are experiencing the greatest changes in their development. It is during these years that educators must continue to provide encouragement to students and enable them to develop confidence in their ability to make sense of mathematics. A focal point for this age group is making connections between mathematics and their future options so that their academic and work-related choices are kept as broad as possible.

Secondary School Level

At the secondary school level, students should recognize the importance of the relationships between academic choices and career choices. It is essential that educators reinforce students' belief in the value of mathematics, in their ability to "do" mathematics now and in the future, and in their need to continually learn.

In addition, students should continually be provided reliable, up-to-date information on—

- how what they are learning in mathematics relates to future options;
- the increasing number of career opportunities that are available as a consequence of further mathematical study;
- how careers in fields other than mathematics and the physical sciences are increasingly dependent on mathematical knowledge;
- their school's graduation requirements in mathematics;
- the entrance and graduation requirements in mathematics for vocational schools, technical schools, colleges, and universities.

Therefore, the NCTM recommends that all educators, including parents, teachers, counselors, and administrators, work together to shape, guide, and inform students' attitudes, perceptions, and decisions regarding their education in mathematics. (February 1994)

The Mathematics Education of Underrepresented Groups

The National Council of Teachers of Mathematics is committed to the principle that groups underrepresented in mathematics-based fields of study should be full participants in all aspects of mathematics education. These groups are composed of students who do not take advanced mathematics courses and do not enter mathematics-related vocations and careers in proportion to their representation in the population. The groups include females, African Americans, Hispanics, Native Americans, Alaskan Natives, and Native Pacific Islanders, among others.

Paths to continuing education and employment opportunities are often hindered by powerful social and institutional influences that discourage these students from studying mathematics. In our challenging and complex society, it is paramount that all students be considered valuable resources to be afforded the opportunity to reach their full potential and contribute to society.

Schools and districts should examine programs including assessment and instructional practices that may lead to mathematics avoidance. Mathematics educators must make an individual and collective commitment to eliminate any psychological and institutional barriers to the study of mathematics. Educators must explore and implement innovative ways to convince students and families from these groups of the vital importance of taking mathematics courses.

Teachers, administrators, and counselors at all educational levels should expect that students from all segments of the population will be successful in mathematics. The teacher is in a pivotal position to motivate and encourage all students to continue the study of mathematics.

All students must study a core curriculum in mathematics that reflects the spirit and the content of the NCTM *Standards*.

The NCTM will continue to work to increase the participation and achievement of underrepresented groups in mathematics education. (April 1995)

Mathematics for Second-Language Learners

The National Council of Teachers of Mathematics is committed to the principle that second-language learners should be full participants in all aspects of mathematics education.

Language and cultural background must not be a barrier to full participation. All students, regardless of their language and cultural background, should study a comprehensive mathematics curriculum with high-quality instruction and coordinated assessment.

The National Council of Teachers of Mathematics believes that—

- second-language learners should be given appropriate first- and second-language support while learning mathematics;
- teachers, counselors, and other professionals who have expertise should carefully assess the language and mathematics proficiencies of each student in order to make appropriate curricular decisions and recommendations;
- the importance of mathematics and the nature of the mathematics program should be communicated, with appropriate language support, to both students and parents;
- mathematics teaching, curriculum, and assessment strategies should build on the prior knowledge and experiences of students and on their cultural heritage.

To verify that barriers have been removed, educators should monitor enrollment and achievement data to determine whether second-language learners have gained access to, and are succeeding in, mathematics courses. Reviews should be conducted at school, district, state or provincial, and national levels.

(July 1998)

Mathematics Leaders in Elementary/ Middle Schools

A key component in the improvement of mathematics instruction for all students is greater attention to the elementary/middle school mathematics program through the provision of stronger mathematics leadership at individual schools.

School mathematics leaders are essential for raising the level of mathematical knowledge and pedagogical competence of the staff, for coordinating mathematics instructional effort within and between buildings, and for helping to assure the implementation of a comprehensive, high-quality program. In addition, school mathematics leaders will support the roles and efforts of teachers, supervisors, and administrators who are increasingly concerned with promoting excellence for their students.

For these reasons, the National Council of Teachers of Mathematics advocates that every elementary/middle school identify a school mathematics leader to provide ongoing leadership and assistance in planning, implementing, and evaluating a comprehensive school mathematics program. School mathematics leaders should be available as a resource to all staff in the areas of curriculum design, professional development, teaching methodology, classroom management, selection of materials, and student assessment.

More specifically, school mathematics leaders may perform or assist in any, or all, of the following tasks connected with the essential instructional functions listed below:

1. *Curriculum Design*
   - *a*) Provide leadership in the development of mathematics instructional programs to meet diverse student needs
   - *b*) Coordinate the implementation of a sound instructional scope and sequence for mathematics
   - *c*) Facilitate the review and revision of the curriculum
   - *d*) Integrate mathematics with other content areas
2. *Curricular Content*
   - *a*) Relate the content of state/provincial and local curriculum guidelines to the individual school's program
   - *b*) Present and interpret mathematics content to meet teachers' needs
   - *c*) Promote the importance of mathematics
   - *d*) Keep abreast of national, state/provincial, and local recommendations for updating and revising curricular content by participating in the activities of professional associations
3. *Methodology and Materials*
   - *a*) Acquaint teachers with successful and innovative strategies for classroom instruction through demonstration lessons and conferences
   - *b*) Consult with teachers in selecting and implementing activities that improve motivation and attitude toward mathematics
   - *c*) Review, and recommend for acquisition when appropriate, teaching materials, calculators, computer software, etc., and assist teachers in integrating them into the program
4. *Assessment*
   - *a*) Participate in the review and selection of means of assessment
   - *b*) Assist staff in designing and using classroom tests
   - *c*) Assist staff in interpreting and using test data and placing students in appropriate activities
5. *Other Functions*
   - *a*) Work with staff in determining needs and priorities for professional development
   - *b*) Assist teachers, on request, in self-evaluation activities
   - *c*) Plan and budget for the purchase of instructional materials
   - *d*) Maintain and promote effective communication among grades and schools and with parents, the community, and support personnel
   - *e*) Coordinate instruction between regular and special programs to meet individual student needs
   - *f*) Manage, schedule, and equip a mathematics laboratory or teacher resource room
   - *g*) Provide direct instruction, as appropriate, for individual students, mathematics teams, or special projects

As defined, school mathematics leaders serve as an immediate resource to teachers by demonstrating knowledge, competence, and leadership in mathematics education. Thus, they should know and understand mathematics substantially beyond that which they may be expected to teach, and they should have knowledge and competence in the methods and techniques appropriate for effectively teaching mathematics to elementary/middle school students. (March 1984)

Mathematics Leaders in Secondary Schools

Strong mathematics leadership in each school building is a significant factor in the improvement of secondary mathematics instruction. Leaders in school mathematics are essential for improving the mathematical knowledge and pedagogical competence of the staff, for providing information about mathematics instruction within the school and between the school and its feeder schools, and for assuring the implementation of a comprehensive, high-quality program. Such leaders give assistance and support to teachers and administrators in promoting excellence in mathematics for all students.

For these reasons, the National Council of Teachers of Mathematics recommends that every secondary school identify a mathematics leader, often called the department head, to provide ongoing leadership and assistance in planning, implementing, and evaluating a comprehensive mathematics program. The mathematics leader must have an in-depth understanding of mathematics and a thorough knowledge of, and competence in, effective teaching methodology, coupled with the ability to work well with others. Such a person would be available at the building level to provide leadership in matters concerning (a) curriculum, (b) methodology and materials, (c) student assessment, (d) professional development, and (e) procedural duties.

Specifically, the mathematics leader should provide leadership and assistance to teachers, principals, supervisors, and other administrators in the following ways:

1. *Curriculum*
   - *a*) Fostering the development, implementation, evaluation, and updating of departmental goals and objectives
   - *b*) Coordinating the implementation of an effective instructional scope and sequence for mathematics
   - *c*) Contributing toward the development of course offerings to meet diverse student needs
   - *d*) Facilitating the review and revision of curricula to incorporate new developments in mathematics education
   - *e*) Encouraging the integration of mathematics with other content areas
   - *f*) Providing curriculum articulation between schools and among grade levels
   - *g*) Assuring consistent standards among teachers and among courses
2. *Methodology and Materials*
   - *a*) Acquainting teachers with successful and innovative strategies for classroom instruction through demonstration lessons and conferences
   - *b*) Helping teachers select and implement activities that improve students' motivation and attitude toward mathematics
   - *c*) Facilitating the review and selection of textbooks

d) Making recommendations for the acquisition of teaching resources such as manipulative materials, calculators, computers, computer software, and other instructional media

3. *Student Assessment*

a) Participating in the review and selection of assessment techniques

b) Assisting teachers in the design and implementation of all forms of assessment

c) Helping teachers interpret and use assessment data

d) Working with the guidance staff to facilitate appropriate student placement

4. *Professional Development*

a) Encouraging teachers to pursue further study of the mathematical sciences

b) Providing information about innovative materials and teaching strategies recommended by the mathematics education community

c) Encouraging teachers to become participating members in professional mathematics organizations

d) Facilitating the attendance of teachers at professional meetings and conferences

e) Encouraging discussion of the professional literature in mathematics education and related fields

5. *Procedural Duties*

a) Orienting new teachers

b) Assisting substitute teachers and student teachers

c) Conducting departmental meetings

d) Participating in the development of the master schedule

e) Formulating the departmental budget

f) Participating in the recruitment and selection of mathematics teachers

g) Facilitating students' participation in competitions and special programs

For the mathematics leader to accomplish the expected tasks, it is recommended that school systems provide a monetary supplement, released time, sufficient support services, and the opportunity to participate in professional activities in mathematics education at the local, state/provincial, regional, and national levels. The school mathematics leader is a critical component of an effective mathematics instructional program. The need for strong leadership at the building level is not merely desirable, it is essential. (April 1988)

Metrication

Measurement is a common daily activity performed in all nations, and a knowledge of its concepts and skills is an important topic for all sectors of society. On an international level, the increased demand for a common language of measurement has been eased by the adoption of the metric system. The teaching of this system of measurement is not the sole responsibility of mathematics teachers, however; all teachers and administrators share the responsibility to prepare students for a world where the metric system of measurement prevails. Yet, many in education, including mathematics education, continue to ignore the teaching and learning of the metric system.

As a part of the mathematics program, metric education provides models for activities involving numeration, decimal concepts, and estimation. It serves as a link that joins measurement concepts and skills to other major topics in the school mathematics curriculum. Therefore, the National Council of Teachers of Mathematics supports the use of the metric system as an integral part of the mathematics curriculum at all levels of education and recommends that all educators assume responsibility for providing leadership and direction in metric education. (April 1986)

Professional Development of Teachers of Mathematics

The National Coucil of Teachers of Mathematics believes that teachers of mathematics must have access to professional programs and activities that reinforce the instructional and assessment strategies it advocates for students in the *Standards* and that the primary focus for all professional development programs is helping teachers teach mathematical content to their students.

The professional development of teachers of mathematics is a process of learning: learning mathematics and about mathematics; learning about students and how they learn, individually and in the social setting of school; and learning the craft of teaching. In light of the *Standards,* professional development must also include learning new ways to develop mathematical power in all students.

Professional development must—

- actively engage teachers in developing an understanding of mathematics, pedagogy, and students, just as good instruction actively engages students in learning and developing their own understanding;
- allow adequate time and furnish support for teachers to explore, practice, discuss, refine, apply, and reflect on new ideas, techniques, and practices, just as good instruction allows students to explore, practice, discuss, refine, and apply new understandings;
- provide feedback and support from colleagues and supervisors, particularly when changes are being implemented, just as good instruction supports students with feedback from teachers and peers;
- focus on school or department faculties as the primary unit of attention, just as classrooms are the primary unit of focus for students;
- set students' learning of mathematics as the ultimate outcome of all professional development, just as students' learning of mathematics is the ultimate goal of all classroom mathematics instruction.

NCTM recommends, therefore, that all professional development programs must—

- be planned and implemented as a regular part of teachers' ongoing work;
- be guided by a comprehensive framework that emphasizes—
  - building teachers' knowledge of content, pedagogy, and students;
  - translating the vision of the *Standards* into daily teaching practice;
  - creating vibrant support networks for teachers at the local, state or provincial, regional, and national levels;

- attend to teachers' needs as they work to enhance the learning of all students—including students from groups typically underrepresented in mathematics—in their classrooms, schools, and communities;
- provide teachers with sustained opportunities to collaborate with colleagues, to share and critique ideas, and to draw on the knowledge and perspectives of others as reflective and analytical members of a professional community;
- recognize that the needs of teachers should evolve as they move from being prospective teachers to new teachers to experienced teachers;
- involve teachers in the identification of their needs and in the program's design and implementation;
- be shaped by the most current knowledge of effective practice and ways to achieve it;
- be supported by adequate long-term financial and structural resources. (July 1998)

Research in Mathematics Education

Significant improvements in the teaching and learning of mathematics result from the systematic development of research-based knowledge. Such knowledge is relevant to the needs of all persons associated with mathematics education. For example, research that investigates classroom practices benefits students and teachers. Research that suggests directions for programs and policy decisions provides guidance to administrators, supervisors, and curriculum developers. Research that promotes understanding of teacher development benefits teacher educators and preservice teachers. Research that clarifies our understanding of basic learning principles benefits everyone.

Classroom teachers, supervisors, mathematicians, teacher educators, and curriculum developers can all play important roles in the research process. For example, classroom teachers can identify pertinent issues for research and contribute to their investigation; mathematics supervisors and teacher educators can communicate research findings to in-service and preservice teachers; and curriculum developers can implement research findings in the preparation of student and teacher instructional materials.

Gains in research-based knowledge are made when mathematics educators are aware of pertinent research in other disciplines and collaborate with researchers in these disciplines. But it is the mathematics educators themselves, trained in the content of mathematics and methods of teaching it, who must assume leadership roles in conceptualizing, communicating, and implementing research related to mathematics instruction.

The National Council of Teachers of Mathematics (NCTM) affirms the central role of research in the teaching and learning of mathematics. NCTM therefore supports research in mathematics education and promotes efforts to communicate the findings and implications of such research. Furthermore, NCTM encourages all mathematics educators to be involved in activities related to research. (September 1990)

Teaching Mathematics in the Middle Grades

The National Council of Teachers of Mathematics advocates that all teachers of mathematics for middle-grades students have extensive preparation in mathematics and its pedagogy as related to the characteristics and needs of students in those grades.

All students have the right to a mathematics education that ensures mathematical literacy and the development of the concepts, skills, and dispositions necessary for a meaningful and productive life. Middle-grades students in particular are at a crucial stage when the attitudes they develop toward mathematics can have a significant impact on their chances for success in high school mathematics and on their life choices. It is therefore essential that mathematics teaching in the middle grades help students experience mathematics as a personally meaningful and worthwhile endeavor.

Therefore, middle-grades mathematics teachers should—

- have high-quality preparation in mathematics and mathematical pedagogy as outlined in NCTM's *Professional Standards for Teaching Mathematics;*
- create a learning environment that fosters students' confidence in their own abilities and skills in problem solving, reasoning, making connections, and communicating with and about mathematics;
- work with other teachers as a team to develop meaningful mathematics programs;
- modify mathematics instruction as needed to motivate and nurture students;
- interact sensitively with students and parents from diverse racial and cultural backgrounds.

Schools, school districts, colleges, universities, and provincial or state licensing agencies are encouraged to collaborate in designing and implementing undergraduate, in-service, and graduate programs that—

- include preparation for the middle-grades teacher's license or certification;
- enable middle-grades teachers of mathematics to teach for the present and future demands of society in accordance with the developmental needs of the students. (July 1998)

The Use of Technology in the Learning and Teaching of Mathematics

The appropriate use of instructional technology tools is integral to the learning and teaching of mathematics and to the assessment of mathematics learning at all levels.

Technology has changed the ways in which mathematics is used and has led to the creation of both new and expanded fields of mathematical study. Thus, technology is driving change in the content of mathematics programs, in methods for mathematics instruction, and in the ways that mathematics is learned and assessed. A vital aspect of such change is a teacher's ability to select and use appropriate instructional technology to develop, enhance, and extend students' understanding and application of mathematics. It is essential that teachers continue to explore the impact of instructional technology and the perspectives it provides on an expanding array of mathematics concepts, skills, and applications.

Therefore, the National Council of Teachers of Mathematics makes the following recommendations:

- Every student should have access to an appropriate calculator.
- Every mathematics teacher should have access to a computer with appropriate software and network connections for instructional and noninstructional tasks.

- Every mathematics classroom should have computers with Internet connections available at all times for demonstrations and students' use.
- Every school mathematics program should provide students and teachers access to computers and other appropriate technology for individual, small-group, and whole-class use, as needed, on a daily basis.
- Curriculum development, evaluation, and revision must take into account the mathematical opportunities provided by instructional technology. When a curriculum is implemented, time and emphasis must be given to the use of technology to teach mathematics concepts, skills, and applications in the ways they are encountered in an age of ever increasing access to more-powerful technology.
- Professional development for preservice and in-service teachers must include opportunities to learn mathematics in technology-rich environments. (July 1998)

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Gail F. Burrill, Hales Corners, Wis. (Past President, 1999)

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Dwight A. Cooley, Fort Worth, Tex., 1999

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Committees in this cluster monitor, anticipate, inform, and recommend. They advise the Board of Directors on a wide range of topics and issues in mathematics education.

Committee for a Comprehensive Mathematics Education of Every Child—Assists the Council in implementing its goal on the comprehensive education of every child. **Frederick Uy,** Bayside, N.Y., 2000 (chair); **Elda Lopez-Bolio,** Houston, Tex., 1999; **Dwight A. Cooley,** Fort Worth, Tex. 1999 (Board liaison); **Duane Cooper,** College Park, Md., 1999; **Terri Belcher,** Berkeley, Calif., 2000; **Joe Aragon,** New Laguna, N.M., 2001; **Gary G. Cochell,** Canton, MO, 2001; **Marilyn L. Hala,** Reston, Va. (staff liaison)

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Publications Cluster

These committees set editorial policies and practices, attract new authors and reviewers, and coordinate focus-issue topics for the journals. They advise the Board on matters related to NCTM's journal, book, video, and software publishing efforts.

Educational Materials Committee—Advises the Board of Directors on matters dealing with the NCTM educational materials program. Reviews manuscripts and proposals; generates and monitors projects and proposals consistent with a balanced educational materials program; and monitors existing publications for continued relevance. **Eric Hart,** Kalamazoo, Mich., 1999 (chair); **Cathy A. Wick,** Saint Cloud, Minn., 1999; **Sunday Ajose,** Greenville, N.C., 2000; **Buckley Johnson,** Wethersfield, Conn., 2000; **Cheryl Bach,** Sitka, Alaska, 2001; **Rita Janes,** St. John's, Newf., 2001 (board liaison); **Vodene Schultz,** El Paso, Tex., 2001; **Harry B. Tunis,** Reston, Va. (staff liaison); **Jean T. Carpenter,** Reston, Va. (staff liaison)

The Educational Materials Committee oversees the following related editorial panels and task forces:

a. ***Assessment Addenda Task Force***—**Bill Bush,** Lexington, Ky. (chair); **Charles Allen,** Pittsburgh, Pa.; **Florence Glanfield,** Edmonton, Alta.; **Anja Greer,** Exeter, N.H.; **Steven J. Leinwand,** Middletown, Conn.; **Jean Stenmark,** Port Richmond, Calif.

b. ***History of Mathematics Education***—**Jeremy Kilpatrick,** Athens, Ga. (cochair); **George M. A. Stanic,** Athens, Ga. (cochair); **Eileen Donoghue,** New York, N.Y.; **Carolyn Kieran,** Montreal, Que.; **William J. Reese,** Madison, Wis.; **Zalman Usiskin,** Chicago, Ill.

c. ***Mathematics in the Early Years***—**Juanita Copley,** Cypress, Tex. (chair); **Bob Balfanz,** Baltimore, Md.; **Herb Ginsburg,** New York, N.Y.; **Yolanda Padron,** Houston, Tex.; **Sarah Sprinkel,** Orlando, Fla.; **Marianne Weber,** Chesterfield, Mo.

d. ***Multiculturalism/Gender Series***—**Walter Secada,** Madison, Wis. (general editor); **Gerald R. Fast,** Oshkosh, Wis., (coeditor); **Carol A. Edwards,** Saint Louis, Mo. (editor—Asian); **Judith Hankes,** Oshkosh, Wis. (editor—American Indian); **Judith E. Jacobs,** West Covina, Calif. (editor—Gender); **Luis Ortiz-Franco,** Orange, Calif. (editor—Hispanic); **Marilyn E. Strutchens,** College Park, Md. (editor—African American).

e. ***Oral History Task Force***—**James D. Gates,** Reston, Va. (chair); **Alan Foster,** Winfield, Ill.; **Karen Dee Michalowicz,** Falls Church, Va., **Alan Osborne,** New Albany, Ohio; **Shirley Frye,** Cave Creek, Ariz.; **Kathleen P. Chapman,** Reston, Va., (staff liaison)

f. ***Yearbook Editors and Panels***—**Frances R. Curcio,** New York, N.Y., 1999–2001 General Editor; **George Bright,** Greensboro, N.C., 2002–04 General Editor.

1. 1999 Yearbook: *Developing Mathematical Reasoning, K–12;* **Lee V. Stiff,** Raleigh, N.C., (editor); **Michaele Chappell,** Tampa, Fla.; **James Landwehr,** Murray Hill, N.J.; **Peter Lax,** New York, N.Y.; **Alan H. Schoenfeld,** Berkeley, Calif.; **Linda Walker,** Tallahassee, Fla.

2. 2000 Yearbook: *Learning Mathematics for a New Century;* **Maurice Burke,** Bozeman, Mont. (editor); **John A. Dossey,** Normal, Ill.; **Kimberley Girard,** Glasgow, Mont., **Carolyn Mahoney,** San Marcos, Calif.; **Lee Zia,** Durham, N.H.

3. 2001 Yearbook: *The Role of Representation in School Mathematics: Symbols, Models, and Tools;* **Albert A. Cuoco,** Newton, Mass. (editor); **Hyman Bass,** New York, N.Y.; **Carolyn Kieran,** Montreal, Que.; **Arthur B. Powell,** Newark, N.J.; **Jesse Solomon,** Boston, Mass.

Journal for Research in Mathematics Education **Editorial Panel**—Establishes standards and procedures for the publication of the *Journal for Research in Mathematics Education* and associated monographs. Oversees the reviewing and editing of manuscripts and monitors manuscript flow. **Judith Sowder,** San Diego, Calif., 2000 (editor); **Edward A. Silver,** Pittsburgh, Pa., 2000 (editor-elect) and 2001–04 (editor); **Neil A. Pateman,** Honolulu, Hawaii, 1999 (chair); **Erna Yackel,** Hammond, Ind., (monograph editor); **Laurie D. Edwards,** Santa Cruz, Calif., 1999; **Steven R. Williams,** Provo, Utah, 1999; **Graham A. Jones,** Normal, Ill., 2000; **Judit Moschkovich,** Cambridge, Mass., 2000; **Annie Selden,** Cookeville, Tenn., 2000; **David Kirshner,** Baton Rouge, La., 2001; **Jane Swafford,** Normal, Ill., 2001; **John A. Van de Walle,** Richmond, Va., 2001 (Board liaison); **Vicki Zack,** Montreal, Que., 2001; **Diana V. Lambdin,** Bloomington, Ind. (review editor); **Jean T. Carpenter,** Reston, Va. (managing editor); **Charles A. (Andy) Reeves,** Reston, Va. (staff liaison)

Each of the panels below is responsible for the policy, procedures, content, and standards for the publication of their respective periodical:

Mathematics Education Dialogues **Editorial Panel**—**Zalman Usiskin,** Chicago, Ill., 1999 (editor); **Johnny Lott,** Missoula, Mont., 1999 (editor-elect) and 2000-01 (editor); **Hyman Bass,** New York, N.Y., 1999; **Peggy House,** Marquette, Mich., 1999; **Cynthia Ballheim,** Calgary Alta., 2000; **Charles A. (Andy) Reeves,** Reston, Va. (staff liaison)

Mathematics Teacher **Editorial Panel**—**Dorothy Doyle,** Durham, N.C., 1999 (chair); **Daniel M. Fendel,** San Francisco, Calif., 1999; **Loring (Terry) Coes III,** Wakefield, R.I., 2000 (Board liaison); **Peter Flusser,** Salina, Kans., 2000; **Kimberley Girard,** Glasgow, Mont., 2000; **Willard (Bill) Blaskopf,** Livingston, N.J., 2001; **Daniel Chazan,** East Lansing, Mich., 2001; **Carryl Koe,** Delta, B.C., 2001; **Joan C. Armistead,** Reston, Va. (staff liaison)

Mathematics Teaching in the Middle School **Editorial Panel**—**Tina Pateracki,** Mount Pleasant, S.C., 1999 (chair); **Suzanne Smith Austin,** Miami, Fla., 1999, **Dan Brutlag,** Mill Valley, Calif., 2000; **Eric Wood,** Delaware, Ont., 2000; **Thomas R. Lewis,** Moline, Ill.., 2001 (Board liaison); **Jan Parsons,** Bethany Beach, Del., 2001; **Lisa Schlange,** Kalispell, Mont., 2001; **Kathleen P. Chapman,** Reston, Va. (staff liaison)

Teaching Children Mathematics **Editorial Panel**—**DeAnn Huinker,** Milwaukee, Wis., 1999 (chair); **Charles P. Geer,** Lubbock, Tex., 1999; **Lillian (Nordie) Deal,** Newark, Del., 2000; **David Fuys,** Brooklyn, N.Y., 2000; **Richard Kopan,** Calgary, Alta., 2000 (Board liaison); **Angela Giglio Andrews,** Naperville, Ill., 2001; **James (Jim) Barta,** Logan, Utah, 2001; **Daniel H. Breidenbach,** Reston, Va. (staff liaison)

Services Cluster

The services committees address a wide range of areas that directly affect the NCTM membership and explore ways to enhance services.

Conference Services Committee—Advises the Board of Directors on matters dealing with annual meetings, regional conferences, and special conferences. Provides consultant services on planning and implementing NCTM's annual meetings and conferences. Includes annual meeting and regional meeting program and local arrangements committees. **Mary Hatfield,** Lawrence, Kans., 1999 (chair); **Laurie Boswell,** Monroe, N.H., 1999; **Linda Gojak,** Euclid, Ohio, 1999 (Board liaison); **Rose Strahan,** Cleveland, Miss., 1999; **Ken Sherrick,** Middletown, Conn., 2000; **Richard P. Stucky,** Shoreline, Wash., 2000; **Jennie Bennett,** Houston, Tex., 2000; **Paul R. Kelley,** Andover, Minn., 2001; **Betty Morris,** Edmonton, Alta, 2001; **Betty C. Richardson,** Reston, Va. (staff liaison); **Barbara J. Thode,** Reston, Va. (staff liaison)

The Conference Services Committee oversees the annual meeting and regional conference program comittees listed below.

Annual Meetings

77th Annual Meeting, San Francisco, Calif., 22–24 April 1999—Ed Dickey, Columbia, S.C. (program chair); Gail F. Burrill, Hales Corners, Wis. (site arrangements chair); Sandra Powers, Charleston, S.C. (site arrangements vice-chair); Johnny W. Lott, Missoula, Mont. (site arrangements vice-chair)

78th Annual Meeting, Chicago, Ill., 13–15 April 2000— Karen Karp, Louisville, Ky. (program chair); Ann Hanson, Oak Park, Ill. (local arrangements cochair); Natalie Jakucyn, Chicago, Ill. (local arrangements cochair)

Regional Conferences

1. ***Hartford, Connecticut,*** 15–17 October 1998—**Kenneth Sherrick,** Middletown, Conn. (conference chair); **Mari Muri,** Cromwell, Conn. (program cochair); **Dan Dolan,** Cromwell, Conn. (program cochair)
2. ***Louisville, Kentucky,*** 15–17 October 1998—**Allan Podbelsek,** Louisville, Ky. (conference cochair); **Ken Jones,** Louisville, Ky. (conference cochair); **Robert Ronau,** Louisville, Ky. (program cochair); **Karen Karp,** Louisville, Ky. (program cochair)
3. ***Calgary, Alberta,*** 23–24 October 1998—**George Ditto,** Calgary, Alta. (conference cochair); **Bob G. Michie,** Calgary, Alta. (conference cochair); **Cynthia Ballheim,** Calgary, Alta. (program cochair); **Richard Kopan,** Calgary, Alta. (program cochair)
4. ***Little Rock, Arkansas,*** 29–31 October 1998—**Linda K. Griffith,** Conway, Ark. (conference chair); **Shari Wilson Coston,** Hot Springs, Ark. (program chair)
5. ***Reno, Nevada,*** 11–13 November 1998—**James W. Brant,** Carson City, Nev., (conference chair); **Ruth E. Wilson,** Las Vegas, Nev., (program chair)
6. ***Charlotte, North Carolina,*** 4–6 February 1999—**Roger Bruhwel,** Charlotte, N.C. (conference cochair); **Sue Sams,** Charlotte, N.C. (conference cochair); **Robert Kimball,** Raleigh, N.C. (program chair)
7. ***Des Moines, Iowa,*** 11–13 February 1999—**Rose M. Zbiek,** Iowa City, Iowa (conference cochair); **Susan Lynn Risius,** West Des Moines, Iowa (conference cochair); **Virginia Swenson,** Ames, Iowa (program cochair); **Brian A. Keller,** Ames, Iowa (program cochair)
8. ***Great Falls, Montana,*** 4–6 March 1999—**Terri L. Dahl,** Carter, Mont. (conference chair); **Richard Seitz,** Helena, Mont. (program chair)
9. ***Honolulu, Hawaii,*** 27–30 July 1999—**Jeanne Nelson,** Honolulu, Hawaii (conference cochair); **Jennie Thompson,** Waipahu, Hawaii (conference cochair); **Joseph T. Zilliox,** Honolulu, Hawaii (program cochair); **Neil A. Pateman,** Honolulu, Hawaii (program cochair)
10. ***Boise, Idaho,*** 7–9 October 1999—**Becky A. Compton,** Boise, Idaho (conference chair); **Beth A. Krantz,** Parma, Idaho (program chair)
11. ***Pittsburgh, Pennsylvania,*** 13–15 October 1999—**Thomas F. Sigmund,** Johnstown, Pa. (conference cochair); **Charles Fleming,** Pittsburgh, Pa. (conference cochair); **Joann Mullen,** Fairview, Pa. (program cochair); **Ann Noonan,** Edinboro, Pa. (program cochair)
12. ***Topeka, Kansas,*** 11–13 November 1999—**Richard T. Driver,** Topeka, Kans. (conference cochair); **Betsy Wiens,** Topeka, Kans. (conference cochair); **Connie S. Schrock,** Emporia, Kans. (program cochair); **Jean Morrow,** Olathe, Kans. (program cochair)
13. ***Phoenix, Arizona,*** 2–4 December 1999—**Karen A. Engelman,** Chandler, Ariz. (conference chair); **Barbara White,** Prescott, Ariz. (program chair)
14. ***El Paso, Texas,*** 27–29 January 2000—**Vodene N. Schultz,** El Paso, Tex. (conference chair); **Alicia Torres,** El Paso, Tex. (program chair)
15. ***Mobile, Alabama,*** 16–18 March 2000—**Elizabeth Evans,** Mobile, Ala. (conference chair); **C. J. Daane,** Tuscaloosa, Ala. (program cochair); **Tommy G. Smith,** Birmingham, Ala. (program cochair)
16. ***Halifax, Nova Scotia,*** 20–22 July 2000—**Richard S. MacKinnon,** Halifax, N.S. (conference chair); **David M. DeCoste,** Antigonish, N.S. (program chair)
17. ***Philadelphia, Pennsylvania,*** 12–14 October 2000—**Don Scheuer, Jr.,** Fort Washington, Pa. (conference chair); **James Rubillo,** Willow Grove, Pa. (program chair)
18. ***Omaha, Nebraska,*** 19–21 October 2000—**Dave Stodola,** Omaha, Nebr. (conference chair); **Tedi Lund,** Omaha, Nebr. (program chair)
19. ***Charleston, South Carolina,*** Fall 2000—**Hope Florence,** Charleston, S.C. (conference chair); **Jan Massey,** Rock Hill, S.C. (program chair)
20. ***Springfield, Massachusetts,*** 2–4 November 2000—**Lyn Heady,** Northampton, Mass. (conference chair); **William W. Chandler,** North Adams, Mass. (program chair)
21. ***Yakima, Washington,*** 8–10 March 2001—**Jan M. Rizzuti,** Ellensburg, Wash. (conference chair); **Ron Dalla,** Spokane, Wash. (program chair)

External Relations Committee—Initiates planned efforts to advocate and communicate NCTM and mathematics education goals with other communities. **Tony Spears,** San Diego, Calif., 1999 (chair); **Gail F. Burrill,** Hales Corners, Wis., 1999 (Board liaison); **William James Lewis,** Lincoln, Nebr., 1999; **Steven Viktora,** Wilmette, Ill., 1999; **Mary Delagardelle,** Ames, Iowa, 2000; **Alice Gill,** Washington, D.C., 2000; **Kay Sammons,** Columbia, Md., 2000, **Cathy Humphries,** San Jose, Calif., 2001; **Bob Witte,** Irving, Tex., 2001; **L. Eileen Erickson,** Reston, Va. (staff liaison); **Kathleen Swanda,** Reston, Va. (staff liaison)

Member Services Committee—Recommends and monitors NCTM services that pertain directly to its members. **Martha Wallace,** Northfield, Minn., 1999 (chair); **Sally Fischbeck,** Clifford, Pa., 1999; **Glenda Lappan,** East Lansing, Mich., 2001 (Board liaison); **Thomas Nuttall,** Centreville, Va., 2000; **Virginia Thompson,** El Cerrito, Calif., 2000; **William J. Hunt,** Strongsville, Ohio, 2001; **Andrea I. Prejean,** Washington, D.C., 2001; **Cynthia C. Rosso,** Reston, Va. (staff liaison)

The Member Services Committee oversees the following task force:

a. ***Task Force on Establishing a Contact in Every School***—**Patricia M. Hess,** Albuquerque, N.Mex. (chair); **Margaret DeArmond,** Bakersfield, Calif.; **Judd D. Freeman,** Clive, Iowa; **Brenda D. Haliburton,** Washington, D.C.; **Sharon Stenglein,** Saint Paul, Minn.; **Thomas Nuttall,** Centreville, Va.; **Cynthia C. Rosso,** Reston, Va. (staff liaison)

Regional Services Committee—Maintains liaison between NCTM Affiliated Groups and the Board of Directors. Provides consultant services to local, state or provincial, and Affiliated Groups. **Stephen F. West,** Livonia, N.Y., 1999 (chair); **John J. Brady III** (Southern 1B), Nashville, Tenn., 1999; **Carlos Cabana** (Western 2), Oakland, Calif., 1999; **Ivan Johnson** (Canadian 2), Whistler, B.C., 1999; **Sherry G. Bailey** (Southern 1A), Columbia, S.C., 2000; **James F. Bohan** (Eastern 2), Lancaster, Pa., 2000; **Mary Buck** (Western 1), Helena, Mont., 2000; **Ann Carlyle** (Affiliates-at-Large), Goleta, Calif., 2000 (Board liaison); **Randy Pippen** (Central 1), Lisle, Ill., 2000; **Clementine Sherman** (Southern 2A), Pembroke Pines, Fla., 2000; **Pamela Chandler** (Southern 2B), Missouri City, Tex., 2001; **Linda D. Coutts** (Central 2), Columbia, Mo., 2001; **Betty M. Erickson** (Eastern 1), New London, N.H., 2001; **Sharon Henderson** (Canadian 1), Scotsburn, N.S., 2001; **Nancy Hawthorne,** Reston, Va. (staff liaison); **Mark Workman,** Reston, Va. (staff liaison)

Student Services Committee—Designs and monitors services about mathematics for grades K–12 students. **Mark Saul,** Bronxville, N.Y., 1999 (chair); **Heidi A. Aranda,** Tucson, Ariz., 1999; **Linda T. Inlay,** Napa, Calif., 1999; **Roy L. Barnes,** Little Rock, Ark., 2000; **Charles L. Hamberg,** Aurora, Ill., 2000; **Patricia Lamphere,** Stillwater, Okla., 2001; **Karen Longhart,** Kalispell, Mont., 2001 (Board liaison); **Pamela Schram,** Boone, N.C., 2001; **Joan C. Armistead,** Reston, Va. (staff liaison)

The Student Services Committee oversees the following:

a. ***Student Math Notes Editorial Panel*—Sheryl Yamada,** Beverly Hills, Calif., 2000 (chair); **David S. Daniels,** Longmeadow, Mass., 1999; **Charles L. Hamberg,** Aurora, Ill., 2000; **Jan Robinson,** Wheeling, Ill., 2001; **Terry Souhrada,** Lolo, Mont., 2001; **Joan C. Armistead,** Reston, Va. (staff liaison)

b. ***World's Largest Math Event 5 Committee*—Melfried Olson,** Macomb, Ill., 2000 (chair); **Jane Martain,** Brighton, Utah, 1999; **Roy Barnes,** Pine Bluff, Ark., 2000 (Student Services Committee liaison); **Connie Laughlin,** Muskego, Wis., 2001; **Daniel Brahier,** Bowling Green, Ohio (materials developer); **Daniel H. Breidenbach,** Reston, Va. (staff liaison)

Other Committees and Task Forces

Commission on the Future of the Standards—Mary M. Lindquist, Columbus, Ga. (chair); **Fred Crouse,** Centreville, N.S.; **Portia C. Elliott,** Amherst, Mass.; **Joan Ferrini-Mundy,** McLean, Va.; **Mazie Jenkins,** Madison, Wis.; **Jeremy Kilpatrick,** Athens, Ga.; **Michael Koehler,** Kansas City, Mo.; **Marilyn E. Mays,** Irving, Tex.; **Richard Schoen,** Stanford, Calif.; **Bonnie Walker,** Houston, Tex.; **Gail F. Burrill,** Hales Corners, Wis. (ex officio); **Enrique Galindo,** Bloomington, Ind. (ex officio), **Glenda Lappan,** East Lansing, Mich. (ex officio); **John A. Thorpe,** Reston, Va. (ex officio); **W. Gary Martin,** Reston, Va. (staff liaison)

a. ***Standards 2000 Writing Groups*—Joan Ferrini-Mundy,** McLean, Va. (chair); **W. Gary Martin,** Reston, Va. (staff liaison)

- ***Grades Pre-K–2:*** **Jeane Joyner,** Raleigh, N.C., (chair); **Angela Andrews,** Naperville, Ill.; **Doug Clements,** Buffalo, N.Y.; **Alfinio Flores,** Tempe, Ariz.; **Carol Midgett,** Southport, N.C.; **Judy Roitman,** Lawrence, Kans.
- ***Grades 3–5:*** **Barbara Reys,** Columbia, Mo. (chair); **Francis (Skip) Fennell,** Westminster, Md.; **Catherine Fueglein,** Saint Louis, Mo.; **Melinda Hamilton,** Orlando, Fla.; **Susan Jo Russell,** Somerville, Mass.; **Phil Wagreich,** Chicago, Ill.
- ***Grades 6–8:*** **Edward Silver,** Pittsburgh, Pa. (chair); **Mary Bouck,** Creek, Mich., **Jean Howard,** Helena, Mont.; **Diana Lambdin,** Bloomington, Ind.; **Carol Malloy,** Chapel Hill, N.C.; **Jim Sandefur,** Washington, D.C.
- ***Grades 9–12+:*** **Alan Schoenfeld,** Berkeley, Calif. (chair); **Sue Eddins,** Batavia, Ill.; **Kathy Heid,** State College, Pa.; **Millie Johnson,** Bellingham, Wash.; **Ron Lancaster,** Hamilton, Ont.; **Al Manaster,** La Jolla, Calif.; **Milton Norman,** Norfolk, Va.

b. **Standards 2000 *Electronic Format Group*—Enrique Galindo,** Bloomington, Ind. (chair); **Tom Gorski,** Baltimore, Md.; **Beverly Hunter,** Cambridge, Mass.; **Eugene Klotz,** Swarthmore, Pa.; **Nanette Seago,** Riverside, Calif.; **W. Gary Martin,** Reston, Va. (staff liaison)

Curriculum Review Task Force—Beatriz D'Ambrosio, Indianapolis, Ind. (chair); **Edward J. Barbeau,** Toronto, Ont.; **Dee Dare,** Belleville, Ill.; **Kay Gilliland,** Oakland, Calif.; **Sue Harding,** Whitefish, Mont.; **Johnny Lott,** Missoula, Mont. (Board liaison); **William Stiggers,** Shaker Heights, Ohio; **Danny Breidenbach,** Reston, Va. (staff liaison)

Electronic Resources Committee—Eugene Klotz, Swarthmore, Pa. (chair); **Eric Bergofsky,** Exeter, N.H.; **Chris Dede,** Arlington, Va. (consultant); **Chuck Friesen,** Lincoln, Nebr.; **Bonnie Hagelberger,** Mahtomedi, Minn.; **Rita Janes,** St. John's, Newf.; **Dorothy Keane,** Monrovia, Calif.; **Joe Kmoch,** Whitefish Bay, Wis.; **Harry B. Tunis,** Reston, Va. (staff liaison)

MATHCOUNTS Question Writing Committee—Carol Findell, Boston, Mass. (chair); **Ron Elgin,** Grand Forks, N.D. (2000, and 2001 exams); **Julie Fisher,** Ypsilanti, Mich. (2000, and 2001 exams); **William Leschensky,** Custer, S.D. (1999 exam); **Howard Selbst,** Aurora, Colo. (2000, 2001, 2002 exams); **Rachel Newman Turner,** Baltimore, Md. (2000, 2001, and 2002 exams); **Kris Warloe,** Corvallis, Oreg. (2001, 2002, and 2003 exams)

Mathematics Education Trust Committee—Beverly W. Nichols, Overland Park, Kans., 1999 (chair); **Donald L. Chambers,** Madison, Wis., 2000; **Claudia Carter,** Columbus, Miss., 2001; **W. G. (Garry) Quast,** Slippery Rock, Pa., 2002; **John A. Thorpe,** Reston, Va. (staff liaison)

Task Force on Critical Communication—George W. Bright, Greensboro, N.C. (chair); **Steve Benson,** Oshkosh, Wis.; **Patricia F. Campbell,** College Park, Md. (Board liaison); **Cornelis DeGroot,** New Paltz, N.Y.; **Susan Ohanian,** Charlotte, Vt.; **Cathy Seeley,** Cedar Park, Tex.; **Barbara G. Wells,** Los Angeles, Calif.; **Kathleen Swanda,** Reston, Va. (staff liaison)

Task Force on Teaching and Learning Mathematics in Poor Communities—David Molina, Austin, Tex. (chair); **Richard D. Anderson,** Baton Rouge, La.; **Patricia F. Campbell,** College Park, Md.; **Ruth Cossey,** Oakland, Calif.; **Joan Grampp,** Waukesha, Wis.; **Wimberly Royster,** Lexington, Ky.; **Edward Silver,** Pittsburgh, Pa.; **W. Gary Martin,** Reston, Va. (staff liaison)

Representatives

1. ***Alliance for Curriculum Reform*—Jack Price,** Newport Beach, Calif., April 1999
2. ***American Association for the Advancement of Science*—James T. Fey,** Wheaton, Md. (Section A, Mathematics), February 1999; **Jack Price,** Newport Beach, Calif. (Section Q, Education), February 1999
3. ***American Mathematics Competitions*—Mary Jo Messenger,** Columbia, Md., April 1999; **Joyce Hawkins,** Hallandale, Fla., April 2000.
4. ***AMS/MAA/SIAM/NCTM/IMS/ASA/AWM Joint Committee on Women in the Mathematical Sciences*—Ena Gross,** Richmond, Va., April 1999
5. ***American Statistical Association/NCTM Joint Committee on the Curriculum in Statistics and Probability*—Maria Mastromatteo,** Ravenna, Ohio, December 1998; **Mike Shaughnessy,** Portland, Oreg., December 1999; **Landy Godbold,** Atlanta, Ga., December 2000
6. ***Conference Board of the Mathematical Sciences*—Glenda Lappan,** East Lansing, Mich., April 2000
7. ***Coordinating Board, AMATYC/MAA/NCTM*—Glenda Lappan,** East Lansing, Mich., 2000; **John A. Thorpe,** Reston, Va.
8. ***Council of Scientific Society Presidents*—Gail F. Burrill,** Hales Corners, Wis., April 1999; **Glenda Lappan,** East Lansing, Mich., April 2000
9. ***Eisenhower National Clearinghouse Board*—Harry B. Tunis,** Reston, Va., June 2000
10. ***Eisenhower National Clearinghouse Steering Committee*—John A. Thorpe,** Reston, Va.
11. ***International Mathematics Education*—Frances R. Curcio,** Staten Island, N.Y., April 1999
12. ***Junior Engineering Technical Society*—John A. Thorpe,** Reston, Va.
13. ***MAA/AMS Joint Committee on Research in Undergraduate Mathematics*—Joan Ferrini-Mundy,** McLean, Va., 1998
14. ***MATHCOUNTS Foundation Board*—Joan C. Armistead,** Reston, Va., 1999; **James D. Gates,** Reston, Va., 1999
15. ***Mu Alpha Theta*—Mary Rhein,** Mainville, Ohio, April 2000
16. ***National Advisory Council of the Tandy Technology Scholars*—John A. Thorpe,** Reston, Va.
17. ***National Assessment of Educational Progress*—John A. Dossey,** Normal, Ill., December 1999
18. ***National Council for Accreditation of Teacher Education*—Nancy Edwards,** Saint Joseph's, Mo., July 2001
19. ***National Council for Accreditation of Teacher Education Board of Examiners*—Monty G. Fickel,** Chadron, Nebr., July 1999; **Denisse R. Thompson,** Tampa, Fla., July 1999; **Willie Mae W. Beamon,** Norfolk, Va., July 2000; **James G. Troutman,** York, Pa., July 2000; **Jean Morrow,** Olathe, Kans., July 2001

NCTM and Its Affiliated Groups: Partners in Excellence

Affiliated Groups (AGs) of the National Council of Teachers of Mathematics have goals that are consistent with NCTM's goals, objectives, and mission. NCTM draws much of its strength from the work of its Affiliated Groups.

Affiliated Groups provide an opportunity for educators to grow professionally with other teachers in their district, city, or state or province. AGs are a rich resource of expertise in mathematics education.

There are more than 260 Affiliated Groups throughout the United States, its territories, Canada, and Europe. Membership size ranges from 6 individuals to 10 000. Most AGs are organized by geographic area and are divided into six regions (see map on p. 32). Some AGs are organized around a specific topic in mathematics education. These groups are called Affiliates-at-Large and are listed first below. Many NCTM members belong to several AGs.

The NCTM Regional Services Committee (RSC) and the Council offer Affiliated Groups many services. AGs are eligible to send representatives to the Delegate Assembly held each year in conjunction with the NCTM annual meeting.

Information on becoming an Affiliated Group is available through AG Services at NCTM. NCTM's Affiliated Groups Web page, www.nctm.org/affiliates, is updated regularly and includes Web links when available. Each AG listing that follows includes everything one would need in order to become a member. You can also get this information by requesting Fax-on-Demand document #110. Please direct any questions regarding AGs to Affiliated Group Services at (703) 620-9840, ext. 2104, or e-mail aginfo@nctm.org.

Affiliates-at-Large

Association of State Supervisors of Mathematics #127, $30
(1/2) *Jacqueline P. Mitchell, Maine Department of Education, State House Station, #23, Augusta, ME 04333; (3) Patricia I. Wright, Richmond, VA

Adult Numeracy Network #396
(1) Esther D. Leonely, Jamaica Plain, MA; (2) *Sandra Paris, 2232 Brigham Street, Brooklyn, NY 11229; (3) Rose Steiner, Billings, MT; (4) Ellen McDevitt, Pittsburgh, PA

Benjamin Banneker Association #366, $15
(1) Carol E. Malloy, Durham, NC; (2) *Bennie Adams, 12443 Quartre Drive, Florissant, MO 63033; (3) Martin Johnson, College Park, MD; (4) William Leonard, Normal, IL; (6) Suzanne Austin, Miami, FL

Council for Technology in Mathematics Education #326, $10
(1/2/3) *Ihor Charischak, 10 Bogert Avenue, White Plains, NY 10606

Council of Presidential Awardees in Mathematics #300, $20
(1) Susan K. Eddins, Batavia, IL; (2) *Dr. Julianna Csongor, 54304 Delaire Landing, Philadelphia, PA 19114-4438; (3) Carolyn Mayes, Elkhart, IN; (4) Kathleen Goto, Honolulu, HI

European Council of Teachers of Mathematics #316, $10
(1/2) *Dennis Yemma, Landstuhl EMS, CMR 402, Box 1629, APO, AE 09180; (3) Kristi Johnson, APO, AE; (4) Grady Zittrouer, APO, AE

International Study Group on Ethnomathematics #347, $10
(1) Ubiratan D'Ambrosio, Sao Paulo, Brazil; (2) *Lawrence Shirley, 854 Bosley Avenue, Towson, MD 21204-2610; (3) James Barta, Logan, UT; (4) Patrick Scott, Albuquerque, NM; (5) Henry Gore, East Point, GA; (1)Joanna Masingila, North American Chapter, Syracuse, NY

International Study Group on the Relations Between History and Pedagogy of Mathematics (Americas Section) #393 ●

National Council of Supervisors of Mathematics #225, $40
(1) Bonnie Walker, Houston, TX; (2) Beryl Jackson, Baltimore, MD; (3) Lilane Koehn, Lombard, IL; (4) Vince O'Connor, Milwaukee, WI; (5) Jim Rubillo, Willow Grove, PA; *Mo Nelson, Post Office Box 10667, Golden, CO 80401

Society of Elementary Presidential Awardees #356, $15
(1/4) Karen Bishop, Ferron. UT; (2) *Richard Callan, 1001 Berwyn Road, New Whiteland, IN 46184; (3) Lisa Crooks, Prairie Village, KS

Women and Mathematics Education #287, $10
(1/2) *Regina Baron Brunner, Cedar Crest College, Mathematics Department, 100 College Drive, Allentown, PA 18104-6196; (3) Sharon Soucy McCrone, Normal, IL

Canadian 1 Region

New Brunswick

New Brunswick Teachers Association Mathematics Council #189, $20 Can.
(1) Kimberley Douglass-Turnbull, Nashwaak Bridge; (2) *Suzanne Gaskin, 57 Goldsboro Street, Riverview, NB E1B 4E9; (3) James Buchanan, Moncton; (4) Carolyn Jones, Fredericton

Newfoundland

Mathematics Council of Newfoundland Teachers Association #236, $5 Can.
(1) Earl Crowther, Labrador City; (2) *Paula Ezekiel, 500 Dinneen Crescent, Apartment 201, Labrador City, NF A2V 1E6; (3) Joy Hoskins, Labrador City; (4) Rita Janes, St. John's

Nova Scotia

Mathematics Teachers Association of the Nova Scotia Teachers Union #190, $12 Can.
(1) Dave Jones, Cambridge Station; (2) *Fran Foster, 20 Towerview Drive, Halifax, NS B3P 1E9; (3) Mark MacLeod, Bridgewater; (4) Jim King, Porter's Lake

Prince Edward Island

Mathematics Teachers' Association of the Prince Edward Island Teachers' Federation #286, $10 Can.
(1) Suzanne Walker, Montague; (2) *Cecil Taylor, Colonel Gray High School, 175 Spring Park Road, Charlottetown, PEI C1A 3Y8; (3) Glenda McInnis, Cornwall

Quebec

Association Mathematique du Quebec #146, $68.37 Can. ■

Quebec Association of Mathematics Teachers #219, $15 Can.
(1) Ken Robertson, St. Huber; (2) *Peter Balyta, Apartment 7, 35 Handel, Candiac, QC J5R 1R7; (3) Patrick Ryan, Pointe Claire; (4) Kevin Marchiniak, Baconsfield

Association des Promoteurs de l'Avancement de la Mathematique a l'Élémentaire #274
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Groupe des responsables en mathématique au secondaire, Inc. #370
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Canadian 2 Region

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Mathematics Council of the Alberta Teachers' Association #147, $30 Can.
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British Columbia

British Columbia Association of Mathematics Teachers #126, $30 Can.
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Manitoba Association of Mathematics Teachers #154, $15 Can.
(1/5) Dianne Soltess, Winnipeg; (2) *Alan Wells, 347 Harcourt Street, Winnipeg, MB R3J 3H6; (3) Ian Donnelly, Winnipeg; (4) Roswitha Nowak, Winnipeg

Ontario

Ontario Association for Mathematics Education #999, $40 Can.
(1) Ralph Connelly, Fonthill; (2/4) *Frances Schatz, 56 Oxford Street, Kitchener, ON N2H 4R7; (3/6) Bonnie Alexander, Rosseau; (4) John Egsgard, Orillia; (6) David Alexander, Rosseau

Saskatchewan

Saskatchewan Mathematics Teachers' Society #139, $25 Can.
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Central 1 Region

Illinois

Illinois Council of Teachers of Mathematics #075, $25
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East Central Council of Teachers of Mathematics in Illinois #371, $6
(1) Suzanne Henderson, Tuscola; (2) *Max Gerling, Mathematics Department, Eastern Illinois University, Charleston, IL 61920; (3) Joyce Bishop, Charleston

Illinois Mathematics Association of Community Colleges #295, $7
(1) Lisa Benson, Olney; (2) *Bettie Truitt, Black Hawk College, 6600 34th Avenue, Moline, IL 61265; (3) David Clydesdale, Dixon

Math Energy Club of Eastern Illinois University #372, $5/sem
(1) Shelby Bivens, Charleston; (2) *Kathy Szabo, 1423 N. Vail, Arlington Heights, IL 60004; (3) Jenna Ritz, Charleston; (6) Karen Blabas, Charleston

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Mathematics Teachers' Association of Chicago and Vicinity #240, $30
(1) Patrick Fowler, Burbank; (2) *Roger Finnell, Fenwick High School, 505 Washington Boulevard, Oak Park, IL 60302-4095; (3) Robert Huntoon, Lombard; (6) Lynn Lubke, Chicago

Metropolitan Mathematics Club of Chicago #001, $20
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Northeast Illinois Mathematics Educators #336, $10
(1/5) Colette Currie, Ingelside; (2/3/4) *Joyce Reilly, 529 Brown Street, Wauconda, IL 60084; (4) Stephanie Levin, Deerfield

Northern Illinois Association of Teachers of Mathematics #378, $15
(1/2) *Lyle Frantz, 8648 South Mulford Road, Rockford, IL 60115; (3) Jack Watts, Rockford; (4) R.B. Thompson, Woodstock; (5) Kris Paulsgrove, Rockford

West Central Council of Teachers of Mathematics (Illinois) #375, $10
(1) Kay Wohlhuter, Macomb; (2) *Melfried Olson, 1 Mary Lane, Macomb, IL 61455; (3) Debra Gerdes, Galesburg

Indiana

Indiana Council of Teachers of Mathematics #081, $15
(1) *Dennis Sorge, 3316 Indian Rock Lane, West Lafayette, IN 47906-1203; (2) Charles Loeffler, Marion; (3) Robin Symonds, Kokomo; (4) Donald R. Whitaker, Muncie; (6) Douglas Roebuck, Muncie

Central Indiana Council of Teachers of Mathematics #362, $30
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Michiana Area Teachers of Mathematics #337, $10
(1/3/4) Carol Hanson, South Bend; (2/5) *Jesse Warren, 1520 Sunnymede Avenue, South Bend, IN 46615

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Southwest Indiana Council of Teachers of Mathematics #280, $5
(1) Kathy Rodgers, Evansville; (2) *Judy Wells, University of Southern Indiana ,8600 University Boulevard, Evansville, IN 47712; (3) Donna Lutz, Evansville; (6) Linda Mand, Newburgh

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Kentucky Council of Teachers of Mathematics #063, $8
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Eastern Kentucky Council of Teachers of Mathematics #338, $2
(1) Tammy Goble, Inez; (2) *Pat Dye, 240 Old Abbott Mountain Road, Prestonsburg, KY 41653; (3) Patty Burchett, Paintsville; (4/6) John D. Sammons, Prestonsburg

Greater Louisville Council of Teachers of Mathematics #145, $10
(1) *Rhonda Niemi, 4106 Alton Roa, Louisville, KY 40207; (2) Joanne Greaver, Louisville; (3) Paula Goins, Crestwood; (4) Sue Fountain, Louisville

Kenlake Council of Teachers of Mathematics #254, $5 ●

Lexington Council of Teachers of Mathematics #282, $8
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Northern Kentucky Council of Teachers of Mathematics #354, $3 ●

Western Kentucky Council of Teachers of Mathematics #394
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Michigan

Michigan Council of Teachers of Mathematics #103, $20
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Central Michigan University—Students Making Math Matter #369, $15 ●

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Ohio

Ohio Council of Teachers of Mathematics #090, $10
(1) Duane Bollenbacher, Bluffton; (2) Bennie Williams, Wickliffe; (3) Marilyn Link, Coldwater; (4) William Hunt, Strongsville; (4/5/6) *Margie Raub Hunt, 16734 Hamilton Count, Strongsville, OH 44136-5701

Bowling Green State University Council of Teachers of Mathematics #325, $6
(1) Kristen Madisen, Bowling Green; (2/3/4/5) *Daniel Brahier, 530 Oak Knoll Drive, Perrysburg, OH 43551

Central Ohio Council of Teachers of Mathematics #262, $5
(1/2) *Doug Darfus, 6384 Chelsea Glen Drive, Canal Winchester, OH 43110; (3) Vicky Kirschner, Columbus; (4) Ed Laughbaum, Columbus; (6) Dynting King, Pickerington

Eastern Ohio Council of Teachers of Mathematics #255, $4
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Greater Akron Mathematics Educators' Society #269, $5
(1/2) *Janice von Spiegel, 202 Mineola Avenue, Akron, OH 44313-7823; (3) Bonnie Swisher, Tallmadge

Greater Canton Council of Teachers of Mathematics #217, $5 ●

Greater Cincinnati Council of Teachers of Mathematics #098, $10
(1) Christine Supinger, Cincinnati; (2) *Linda Bollman, 11540 Snider Road, Cincinnati, OH 45249-1219; (3) Cheryl Tallman, Cincinnati; (4) Judy Gerwe, Cincinnati

Greater Cleveland Council of Teachers of Mathematics #017, $8
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Greater Toledo Council of Teachers of Mathematics #107, $5
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Miami University Council of Teachers of Mathematics #292, $5
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Mid-Ohio Council of Teachers of Mathematics #193, $3 ▲

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(1) Michelle Reed, Columbus; (2) *Andrea Balas, 253 Arps Hall, 1945 North High Street, Columbus, OH 43210; (3) Parisa Vafai, Columbus

Wright State University Area Council of Teachers of Mathematics #324
(1) *Donna Cooper, 1640 East Choctaw, London, OH 43140; (2) James Carruth, Dayton; (3) Peggy O'Brien, Beavercreek; (6) Stacy Robinson, Dayton

Central 2 Region

Iowa

Iowa Council of Teachers of Mathematics #40, $15
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Kansas

Kansas Association of Teachers of Mathematics #024 , $10
(1) Craig Jaggard, Olathe; (2) *Connie Schrock, Emporia State University, Mathematics Department, Empora, KS 66801; (3) Elton Beougher, Hays; (4) Rosalie Nichols, Hays; (5) Margie Hill, Stilwell

Northeast Kansas Association of Teachers of Mathematics #233, $5 ●

South Central Kansas Association of Teachers of Mathematics #029, $5
(1/2) *Gale Farmer, 4164 North Auburn, Wichita, KS 67227; (3) Barbara J. Attivo, Wichita

Minnesota

Minnesota Council of Teachers of Mathematics #079, $15
(1) *Anne Bartel, 4920 Harriet Avenue, South, Minneapolis, MN 55409; (2) Paul Kelley, Andover; (3/6) Arnie Cutler, New Brighton; (4) Dennis Holt, Elk River

Southwest Minnesota Mathematics Teachers Association #226, $5 ●

West Central Council of Teachers of Mathematics #259 ●

Missouri

Missouri Council of Teachers of Mathematics #104, $10
(1) Vena Long, Kansas City; (2) *Charles Epps, 2607 Tomahawk Road, Chillicothe, MO 64601; (3) Linda Coutts, Columbia; (4) Robert Rowe, Columbia; (5) Reta Smith, Bolivar

Kansas City Area Teachers of Mathematics #176, $5 ●

Mathematics Educators of Greater St. Louis #173, $10
(1) Diane Thompson, Kirkwood; (2) *Lynda Hendren, 12737 Glenage Drive, Maryland Heights, MO 63043; (3) Terry Divine, Chesterfield; (4) Chip Day, Florissant; (5) Joe Lee, Chesterfield; (6) Mrs. Marty Crisler, St. Charles

Northeast Missouri Mathematics Association #161, $2 ■

Northwest Missouri Association of Mathematics Teachers #294 ●

Southeast Missouri Council of Teachers of Mathematics #172, $8
(1) Carole Del Vecchio, Cape Girardeau; (2/4) *Dr. Tamela Randolph, 1617 Themis, Cape Girardeau, MO 63701; (3) Donna Mullins, Perryville

Southwest Missouri District Association of Mathematics Teachers #197, $5
(1/4) Mary Ann White, Springfield; (2) *Evelyn Maxwell, 1112 South Greentree, Springfield, MO 65809; (3) Roger Hainline, Springfield

University of Missouri Mathematics Teachers Organization #379, $4
(1) Jennifer Hodits, Columbia; (2) *Susan Tuckett, c/o Barbara Reys, 104 Stewart Hall, Columbia, MO 65211; (3)Ken Simms; Columbia

Nebraska

Nebraska Association of Teachers of Mathematics #035, $15
(1) Dianne Vorderstrassee, Saint Paul; (2) *Peter Smith, 10 Locust Lodge, Council Bluffs, IA 51503; (3) Bonnie Hiykel, Omaha; (4) Don Olsen, Lincoln; (5) Darlene Mahachek, Wisen

North Dakota

North Dakota Council of Teachers of Mathematics #199, $15
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South Dakota

South Dakota Council of Teachers of Mathematics #088, $5
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South Dakota State University Student Council of Teachers of Mathematics #360
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Wisconsin

Wisconsin Mathematics Council, Inc. #078, $25
(1/5) John Janty, Madison; (2) *Dean Berkas, 817 Dempster Street, Fort Atkinson, WI 53538; (3) Joseph Kmoch, Whitefish Bay; (4) Karen Schilling, Platteville

Milwaukee Area Mathematics Council (Wisconsin) #138, $6
(1/2) *Eric Schluter, 5690 North Sievers Place, Glendale, WI 53209; (3/4) Timothy Kuehl, Milwaukee

Multistate

Mo-Kan Council of Teachers of Mathematics (Missouri, Kansas) #150, $5
(1) Paula J. Glashen, Joplin; (2) *Elwyn H. Davis, 2612 Pittsburg State University, Mathematics Department, Pittsburg, KS 66762; (3) Dr. Patrick Cassensm Joplin; (5) Tim Flood, Pittsburg

Eastern 1 Region

Connecticut

Associated Teachers of Mathematics in Connecticut #136, $15 ●

Connecticut Council of Supervisors of Mathematics #351, $10 ●

Maine

Association of Teachers of Mathematics in Maine #163, $10
(1) *Marshalyn E. Baker, Rural Route 1, Box 392, Belgrade, ME 04917; (2) Cynthia H. Petti, Damarisotta; (3) John Morang, Durham; (4) Will Tad Johnston, Orono; (5) Jacqueline Mitchell, Portland

Massachusetts

Association of Teachers of Mathematics in Massachusetts #148, $10
(1) Ron Gaumond, Lancaster; (2) *Joseph V. Kane, 23 Tanglewood Drive, Milford, MA 01757; (3) Douglas C. Stather, Holliston; (4) Leanna Russell, Plymouth; (5) Noreen Berry, Westford

Association of Teachers of Mathematics in Western Massachusetts #320, $10
(1) *Harold Clancy, 243 Liver Street, Monson, MA 01057; (2) Ruth O'Malley, Palmer; (3) Lyn Heady, Northampton; (4) Kathleen Barry, Dudley; (6) Ellie Santos, Longmeadow

New Hampshire

New Hampshire Section of the ATMNE #162, $10
(1) Beverly Ferrucci, Keene; (2) *Diane D. Sawyer, Exeter Area Junior High School, Linden Street, Exeter, NH 03833; (3) Ginny VanHazinga, Somersworth; (4) Suzy Gagnon, Portsmouth; (5) Yvonne Greenleaf, Nashua

New York

Association of Mathematics Teachers of New York State #105, $20
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New York State Association of Mathematics Supervisors #270, $15 ●

Association of Teachers of Mathematics of New York City #082, $12
(1) Jose A. Genco, Bronx; (2) *Evelyn Estrine, 3487 Daniel Crescent, Baldwin, NY 11510; (3) Sandi Plotkin, Little Neck; (4) Angela Cacciola, Brooklyn; (5) Ernie Psyher, New York

Nassau County Association of Mathematics Supervisors #246, $10 ●

Nassau County Mathematics Teachers Association #049
(1) Ann Masters, East Williston; (2) *Lynn Unger, 195 South Middleneck Road, Great Neck, NY 11021; (3) Marion Morgenstein, Woodmere; (4) Sal Scire, Bellmore

Suffolk County Mathematics Teachers Association #051, $10
(1) Grant Duffrin, Shoreham; (2) *Ann Razzono, 137 Manetto Hill Road, Huntington, NY 11743; (3) Janet Fenstermacher, Port Jefferson Station; (4) Rudy Massimo, Deer Park

Ten County Mathematics Educators Association #330, $5
(1) Grace Wilke, Montrose; (2/5) *John Mazzullo, 236 High Ridge Court, Yorktown Heights, NY 10598; (3) Althea Rieff, West Nyack; (4) Sharon Maggiore, New Paltz

United Federation of Teachers Math Teachers' Committee #333, $5
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Rhode Island

Rhode Island Mathematics Teachers Association #152, $10 ●

Vermont

Vermont Council of Teachers of Mathematics #222, $10
(1) Beth Hulbert, Barre; (2) *David Rome, 179 Chapin Road, Essex Junction, VT 05452; (3) Robert W. Chaffee, Essex Junction; (4) Robert Kenney, Burlington; (5) Karla Karstens, Williston

Multistate

Association of Teachers of Mathematics in New England #994
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Eastern 2 Region

Delaware

Delaware Council of Teachers of Mathematics #100, $10
(1) Carol Stead, Wilmington; (2) *Lillian "Nordie" Deal, 1315 Whitaker Drive, Newark, DE 19702; (3) Catherine Kleier, Wilmington; (4) Trina Williams, Dover; (6) Susan White, Chadds Ford

District of Columbia

District of Columbia Council of Teachers of Mathematics #125, $10
(1) Carolyn Roberts, Temple Hills; (2) *Shirley Smith, 11700 Monticello Avenue, Silver Spring, MD 20902; (3) Michael Bethea, Washington; (4) Jacqueline Goodloe, Temple Hills; (5) Jeffery Choppin, Takoma Park

Maryland

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(1) Susan Boyer, Ellicott City; (2) *Patricia Baltzley, Baltimore County Public Schools, 6901 North Charles Street, Baltimore, MD 21204; (3) Catherine Purnell, Baltimore; (4) Spencer G. Lieske, Baltimore; (5) Charles Walsh, Loveville; (6) Donna Crabbe-Watts, Baltimore

Montgomery County Mathematics Teachers Association #114, $3
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New Jersey

Association of Mathematics Teachers of New Jersey #995, $20
(1) Geraldine Butler, Sewell; (2) Marilyn Bobo, Franklinville; (3) Frank Gwalthney, Woodbury; (4) Cyndy Montes, Howell; * Nancy Schultz, 20 Aberdeen Avenue, Wayne, NJ 07470

Pennsylvania

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Association of Mathematics Teachers of Northwestern Pennsylvania #352, $10
(1) Joann Mullen, Erie; (2) *David Marchand, 1267 High Street, Bradford, PA 16701; (3) Stephen Gendler, Clarion; (4) Roger Engle, Clarion; (5) Ronald Harrell, Meadville

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(1) *Dr. Ann H. Bacon, 1319 Church Road, Oreland, PA 19075; (2) David Decker, North Wales; (3) Mark Wassmansdorf, Gladwyne; (4) Dr. Julianna Csongor, Philadelphia

Bucks County Council of Teachers of Mathematics #170, $5
(1) Linda Schutzer, North Wales; (2) *Linda Schutzer, 204 Franklin Court, North Wales, PA 19454; (3) Sheldon Post, Levittown

Central Pennsylvania Mathematics Association #303, $8
(1) *Wayne Boggs, 830 Mockingbird Circle, Stevens, PA 17578; (2) Harry D. Stratigos, Lancaster; (3) Tim Sieber, Newport; (4) Dick Ruth, Shippensburg

Eastern Pennsylvania Council of Teachers of Mathematics #247, $5
(1) Paul Ache, Kutztown; (2) *Ned Schillow, 2431 Old Forty Foot Road, Box 539, Skippack, PA 19474 (3) Barbara Roth, Coplay

Laurel Highlands Mathematics Alliance #363, $5 ●

Mathematics Council of Western Pennsylvania #014, $5
(1) Corinne Murawski, Coraopolis; (2) *Bill Hadley, 1308 Milton Street, Pittsburgh, PA 15218; (3) Lynn Raith, Pittsburgh; (4) Jeff Schmook, Scottdale

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(1) Sally Lima, Lock Haven; (2) *Shirley Miller, State College Area High School, 653 Westerly Parkway, State College, PA 16801; (3) Lisa Yingling, Williamsport

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(1) Dr. Frank J. Sottile, Scranton; (2) *Dr. Marie Loftus, 1110 Fairfield Street, Scranton, PA 18509; (3) James McCrone, Scranton; (4) Ellen Raguckas, Moscow

Pennsylvania State Mathematics Association of Two-Year Colleges #272, $4
(1) Lou Hoelzle, Newtown; (2) *Ned Schillow, Lehigh Carbon Community College, 4525 Education Park Drive, Schnecksville, PA 18078; (3) Robert J. Ulrey, Harrisburg; (4) Sandra Miller, Duncannon

West Virginia

West Virginia Council of Teachers of Mathematics #071, $10
(1/4) Donna Watson, Bluefield; (2) *Carl Johnson, 5429 Lea Hill Drive, Huntington, WV 25705; (3) Steve Dellinger, Hedgesville; (5) Linda Martin, Berkeley Springs; (6) Cheryl Reger, Buckhannon

Kanawha County Council of Teachers of Math (West Virginia) #143, $5
(1) Gail M. McClure, Charleston; (2) *Olivia Teel, 3612 Crede Drive, Charleston, WV 25302; (3) Brenda Belcher, Blount; (4) Nanetta Jones, Charleston; (6) Lois Casto, Scott Depot

Potomac Valley Council of Teachers of Mathematics #296, $25 ●

Southern 1A Region

Bermuda

Bermuda Council of Teachers of Mathematics #358
(1) Keisha Douglas, Hamilton; (2) *Marva G. Allen, The Department of Education, Post Office Box HM1185, Hamilton, Bermuda HM-EX; (3) Low Matthew, Devonshire; (4) Eugenia Robinson, Devonshire; (5) Marlete Darrell, Hamilton

Georgia

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(1) Jerry Payne, Atlanta; (2) *Paula Williams, Winston Elementary School, 7465 Highway 78, Winston, GA 30187; (3) Catherine "Trinka" Shealy, Savannah; (4) Gary Nelson, Kennesaw; (5) Ed Davis, Snellville; (6) Dr. Larry Elbrink, Waycross

Georgia Council of Supervisors of Mathematics #306
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Chattahoochee Council of Teachers of Mathematics #305, $5
(1) Becky Jones, Columbus; (2) *Stephanie Virdrine, 140 Maplebrook Court, Columbus, GA 31904; (2) Carole Collins, Phenix City; (3) Precious Evans, Columbus; (5) Annette Kersey, Thomaston: (6) Shirley Wright, Columbus

Mathematics Education Student Association of the University of Georgia #273, $2
(1) *Wendy Sanchez, The University of Georgia, 105 Aderhold, Athens, GA 30602; (2) Vilma Mesa, Athens; (3) Mangoo Park, Athens; (4) Ron Kleiner, Athens

Metro Atlanta (Georgia) Council of Supervisors of Mathematics #342, $2 ●

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(1) William O. Lacefield, Macon; (2) *Mr. Kelly Derzi, 1100 Allen Road, East, Macon, GA 31206; (3) Margaret W. Faircloth, Macon; (4) Jane Stiles, Macon

North Carolina

North Carolina Council of Teachers of Mathematics #227, $10
(1) *Roger Bruhwel, 9524 Rainbow Forest Drive, Charlotte, NC 28277; (2) Wali Saleem, Chocowinity; (3) Anne J. Palmer, Salisbury; (4) Harold Williford, Cullowhee

South Carolina

South Carolina Council of Teachers of Mathematics #220, $12
(1) *Sherry Bailey, 304 Wood Duck Road, Columbia, SC 29223-3120; (2) Gloria Allen, Aiken; (3) Vera Smyth, Charleston; (4) Janietta Lusk, Columbia; (5) Jean Redfearn, Camden

South Carolina Council of Supervisors of Mathematics #276, $10
(1) Danny Williams, Loris; (2) *Bobbie Kelly, Post Office Box 15202, Quinby, SC 29506; (3) Kay Dillard, Union; (5) Marlene McClerklin, Columbia; (6) Dianne Steelman, Lexington

Catawba Region Mathematics Council of South Carolina #385, $10 ●

Charleston County Council of Teachers of Mathematics #293, $5
(1) *Jeanette O'Keelee, 9 Mulroy Court, Charleston, SC 29414; (2) Nancy Germain, Mount Pleasant; (3) Tina Pateracki, Mount Pleasant; (6) Jerry Weise, Mount Pleasant

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Greenville County Council of Teachers of Mathematics #335, $5
(1) Kerry Bannister, Greenville; (2) *Toni Norris, 15 Wonderwood Drive, Greenville, SC 29615; (3) Sheri Able, Mauldin; (4) Becky Lauder, Greenville

Lowcountry Mathematics Educators Association #392, $5
(1) Barbara Langston, Sullivans Island; (2) *Eileen Maness, 128 Plantation Drive, Summerville, SC 29485; (3) Bob Semle, Goose Creek; (4) Darren Provost, North Charleston; (5) Sue Phillips, Goose Creek; (6) Gayle Kuykendall, Ridgeville

Spartanburg County Council of Mathematics Teachers #343, $5
(1/2) *Mary L. Ruzga, 800 University Way, Spartanburg, SC 29303; (3) Lewanna Caldwell, Duncan

Virginia

Virginia Council of Teachers of Mathematics #260, $10
(1) *Dan Yates, 7295 Shannondale Road, Mechanicsville, VA 23116; (2) Ann Zingraf-Newton, Virginia Beach; (3) Herman Hodges, Castlewood; (4) Dave Albig, Radford; (6) Bill Setzer, Salem

Battlefields of Northern Virginia Council of Teachers of Mathematics #361, $10 ●

Blue Ridge of Virginia Council of Teachers of Mathematics #238, $8
(1) *Tina Frye, 1650 Blair Street, Christiansburg, VA 24073; (2) Lois Cox, Roanoke; (3) Deborah Lyman, Roanoke; (4) Carol Shields, Salem

Greater Richmond Council of Teachers of Mathematics #191, $8
(1) Ken Irby, Powhatan; (2) *Randy Pittman, Reynolds Community College—Mathematics-PRC, Box 85622, Richmond, VA 23285-5622; (3) Kathleen Ann McKenna, Beaverdam; (4) John Berglund, Richmond; (5) Vandi Hodges, Ashland

Jefferson Council of Teachers of Mathematics #321, $5
(1) *Lois Williams, Dixieland Farm, Route 1, Box 1216, Scottsville, VA 24590; (2) Pamela F. Cropp, Madison; (3) John Fogelgren, Charlottesville; (4) Denika Gum, Charlottesville

Northern Virginia Council of Teachers of Mathematics #210, $7
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Peninsula Council of Teachers of Mathematics #245, $5 ●

Piedmont Council of Teachers of Mathematics #264, $5
(1) Sharon Emerson-Stonnell; (2) *Billie Risacher, 1735 Price Drive, Farmville, VA 23901; (3) Nancy Espigh, Farmville; (4) John Arehartm Farmville; (6) James C. Gussett, Farmville

Rappahannock Association of Teachers of Mathematics #283, $8
(1/2) *Sara Branner, Spotsylvania County Schools, 6717 Smith Station Road, Spotsylvania, VA 22553; (3) Rebecca Clark, Stafford

Southwest Virginia Council of Teachers of Mathematics #257, $5
(1) Emmet F. Low, Jr., Wise; (2) *Herman Hodges, Post Office Box 204, Castlewood, VA 24224; (3) Diane Tomlinson, Lebannon

Tidewater Council of Teachers of Mathematics (Virginia) #153, $7
(1) Ann Zingraff-Newton, Virginia Beach; (2) *Alvin Coleman, 2954 Gatehouse Road, Norfolk, VA 23504; (3) Robert Pennington, Virginia Beach; (4) Angela Jenkins-Whitfield, Portsmouth; (5) Marcella F. McNeil, Portsmouth

Valley of Virginia Council of Teachers of Mathematics #228
(1) Dawn Young, Fishersville; (2) *Inez Cochran, Route 2, Box 252, Staunton, VA 24401; (3) Sandra Smiley, Bridgewater; (4) H. Joseph Hill, Mount Sidney

Multistate

Central Savannah River Area Mathematics Collaborative (GA, SC) #373, ●

Southern 1B Region

Florida

Florida Council of Teachers of Mathematics #072, $25
(1/2) *Gerry Greer, 9521 Northwest 18 Drive, Plantation, FL 33322; (3) Debbie Gillis, Okeechobee

Florida Association of Mathematics Supervisors #331, $10
(1/2) Carol Newman, 1041 NW 106 Avenue, Plantation, FL 33322; (3) Linda Welsh, Sanford; (5) Tom Denmark, Tallahassee

Alachua (Florida) Council of Teachers of Mathematics #251, $5
(1/5) *Paige Lado, 1900 Northwest 13th Street, Gainesville, FL 32609; (2) Dr. John Gregory, Gainesville; (3) Norma Wood, Gainesville

Bay District Mathematics Council (Florida) #328, $5 ●

Brevard Council of Teachers of Mathematics (Florida) #201, $5
(1) Jeanne Sheehan, Cocoa; (2) John N. Yantsios, Jr., Cape Canaveral; (3) *Hal Gillette, 3740 Ocean Beach Boulevard, #404, Cocoa Beach, FL 32931-5405; (4) Ruth Tatum, Rockledge

Broward County Council of Teachers of Mathematics #230, $10
(1) Kathleen Sklarew, Coral Springs; (2) *Joyce Hawkins, Flanagan High School, 6901 NW 16th Street, Plantation, FL 33313; (3) Bob Byrne, Sunrise; (4) Allison Castellano, Boca Raton

Council for Mathematics and Science Specialists #395
(1/4) Carol-Anne Warren, Orlando, (2) *Patty Goonen, 5026 Hidden Springs Boulevard, Orlando, FL 32819; (3) Karen Robinson, Apopka; (4) Jan Bethman, Winter Garden

Dade County Council of Teachers of Mathematics #996, $10
(1/2) *Jean Freedman, 9371 SW 63rd Street, Miami, FL 33173; (3) Marilyn Riggins, Miami; (4) Marcus Anglin, Miami; (5) Chris Ruda, Miami

Duval County Council of Teachers of Mathematics #134, $5
(1) Mary Badillo, Jacksonville; (2) *George Bennett, Duval County Public Schools, 1701 Prudential Drive, 3rd Floor, Jacksonville, FL 32207; (3) Jean Spiwak, Jacksonville

Educators of Mathematics in Citrus County #384, $5 ●

Escambia County Council of Teachers of Mathematics #252, $5 ●

Florida Mathematics Presidential Awardees Association #381 ●

Florida Two-Year College Mathematics Association #187, $5 ●

Hillsborough County Florida Elementary Mathematics Council #248, $3
(1) Betty Baldwin, New Port Richey; (2) Jane Murphy, 11109 Clayridge Drive. Tampa, FL 33635; (3) Wally Norden, Brandon; (4) Shannon Reininghaus, Tampa

Lee County Florida Mathematics Council #310
(1) Denise Fasciano, Cape Coral; (2) *Mary Robertson, 2055 Central Avenue, Fort Myers, FL 33901; (3) Donna Sowers, Fort Myers; (4) Bruce Sijan, Fort Myers

Marion County (Florida) Council of Teachers Interested in Mathematics Education #340, $5
(1) Colleen Malito, Belleview; (2) *Luke Reckamp, 1152 SE 42nd Avenue, Ocala, FL 34471; (3) Judith White, Summerfield; (4) Betty Werner, Ocala; (5) Arthur Minor, Micanopy

Okaloosa Florida Council of Teachers of Mathematics #323, $5 ■

Orange County Council of Teachers of Mathematics #149, $5
(1/2) *Susan Hollingsworth, Hunter's Creek Middle School, 13400 Town Loop Boulevard, Orlando, FL 32837; (3) Ann Blomquist, Orlando

Osceola District Council of Teachers of Mathematics #376 ■

Palm Beach County Council of Teachers of Mathematics #174, $10
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Polk County Council of Teachers of Mathematics #314, $3
(1/2/4) *Kathyrn Kellor, 1530 North Delaware Avenue, Avon Park, FL 33825; (3) Alma Rogers, Winter Haven; (6) Roger O'Brien, Bartow

Santa Rosa County Council of Teachers of Mathematics #386 ●

Sarasota Council of Teachers of Mathematics #304, $5
(1) Ricardo S. Bellon, Sarasota; (2) *Downey S. Dutterer, 3322 Thornwood Road, Sarasota, FL 34231; (3) Pam Inman, Sarasota; (4) Sue Pantling, Sarasota; (5) Karen Fekete, Sarasota

Seminole County Council of Teachers of Mathematics #258, $6
(1) Sylvia Barto, Oviedo; (2) *Patsy Young Davis, 234 Shady Oaks Circle, Lake Mary, FL 32746; (3) Carole Reindl, Casselberry

Volusia County Council of Teachers of Mathematics #298, $5
(1) Betsy Turner, Daytona Beach; (2) *Margaret Bambrick, EDC-Volusia County Schools, Post Office Box 2410, Daytona Beach, FL 32115; (3/4) Robert Haughwout, Edgewater

Puerto Rico

Asociacion Puertorriquena de Maestros de Matematicas #215, $15
(1/4) Maria del R. Medina, San Juan; (2) *Joaquin Padovani, Gladiola X-22, Valle Hermosa, Hormigueros, PR 00660; (3) Sarahi Ramos de Lugo, Carolina; (6) Luz Leida Echevarria, Penuelas

Virgin Islands

Virgin Islands Mathematics Teacher Association #391 ●

St. Thomas/St. John Council of Teachers of Mathematics #377 ■

Southern 2A Region

Alabama

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Central Alabama Council of Teachers of Mathematics #359, $2 ●

North Alabama Council of Teachers of Mathematics #318, $2
(1) *Lena C. Vann, 1522 15th Avenue, SW, Decatur, AL 35601; (2) Steven Berryman, Decatur; (3) Gene Cox, Huntsville; (4) Jan Gile, Decatur

West Alabama Council of Teachers of Mathematics #327, $2
(1/3) *C. J. Daane, University of Alabama, Post Office Box 870231, Tuscaloosa, AL 35487; (2) Patricia Moyer, Tuscaloosa; (5) Ann Lilly, Tuscaloosa

Arkansas

Arkansas Council of Teachers of Mathematics #048, $10
(1) Roy Barnes, Pine Bluff; (2) *Wallece Brewer, 1917 Pearl Drive, Jonesboro, AR 72401; (3) Dickie Thomasson, North Little Rock; (4) Shari Coston, Hot Springs; (5) Beverly Williams, Sherwood

Northeast Arkansas Council of Teachers of Mathematics #388 ●

Southwest Arkansas Council of Teachers of Mathematics #383
(1) Connie Moore, Arkadelphia; (2) *Sue Barnes, 149 Cherrybark Lane, Lockesburg, AR 71846; (3) David Gardner, Arkadelphia

Louisiana

Louisiana Association of Teachers of Mathematics #168, $10
(1) *Ellen B. Lee, 775 Stockton Drive, Baton Rouge, LA 70815; (2) Mike Mire, Jennings; (3) Linda Bosch, Baton Rouge; (4) Kim LeBlanc, Welsh; (5) Sheila Talamo, Baton Rouge; (6) Latrenda Knighten, Baton Rouge

Louisiana Council of Supervisors of Mathematics #374, $5 ●

Acadiana Council of Teachers of Mathematics #368
(1) Catherine McKay, Lafayette; (2) *Lori Thibodeaux, 409 Francis Leblanc, Breaux Bridge, LA 70517; (3) Lula Bailey, Lafayette

Baton Rouge Area Council of Teachers of Mathematics #301, $5
(1) Trena Wilkerson, Baton Rouge; (2) *Barbara McManus, 1902 East Magna Carta Place, Baton Rouge, LA 70815; (3) Michelle Creel, Baton Rouge; (6) Liz Jolly, Baton Rouge

Calcasieu Parish Teachers of Mathematics (Louisiana) #380, $5
(1) Kathleen A. Severns, Lake Charles; (2) *Margaretta Thornton, 2071 North Park Lane, Moss Bluff, LA 70611; (3) Joshlyn Foreman, Iowa; (5) Barbara Vaughn, Lake Charles; (6) Tess Morgan, Lake Charles

East Central Louisiana Council of Teachers of Mathematics #390, $10 ■

Greater New Orleans Teachers of Mathematics #244, $10 ●

Jefferson Davis Association of Teachers of Mathematics #308 ●

Northwest Louisiana Mathematics Association #263, $5
(1) Fran Procell, Benton; (2) *Jean Ware, 2114 Algonquin Trail, Shreveport, LA 71107; (3) Cathy Scott, Haughton; (4) Clinton Wallace, Shreveport; (5) Conway Link, Shreveport

Southeast (Louisiana) Area Teachers of Mathematics #397
(1) Allie H. Pearson, Mandeville; (2) *Beth Skipper, Post Office Box 1086, Ponchatoula, LA 70454; (3) Carolyn Carney, Mandeville; (4) Nancy Beben, Mandeville

Mississippi

Mississippi Council of Teachers of Mathematics #234, $10
(1) Lynette Keenum, Jackson; (2) *Jennifer Carnes, 875 William Boulevard, #305, Ridgeland, MS 39157-1517; (3) Patricia Atkins, Corinth; (4) Joyce McNair, Belzoni; (5) Pamela Self, Jackson

Coast Council of Teachers of Mathematics #332, $5 ■

Tennessee

Tennessee Mathematics Teachers' Association #177, $10
(1) Steve Gadbois, Memphis; (2) *J. F. Crabtree, Memphis State University, Department of Curriculum and Instruction, Memphis, TN 38152; (3) Janice Huang, Johnson City; (4) Randy Bouldin, Nashville

Chattanooga Area Mathematics Teachers' Association #290, $5
(1) Marilyn Brown, Chattanooga; (2) Debra Earhart, Post Office Box 26, Hixson, TN 37343; (3) Janet Elliott, Chattanooga; (4) Sherri Barnes, Chattanooga; (5) Ava Warren, Lookout Mountain

Mathematics Teachers of Tennessee Northwest #344, $5
(1) Gail Walker, Wildersville; (2) Patty Flowers, Humboldt; (3) Jo Ann Simmons, Trenton; (5) Deborah Rushing, Dyer; (6) *Cathy Jahr, Route 2, Box 366, Martin, TN 38237

Memphis Area Council of Teachers of Mathematics #207, $2
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(1) Andrea Sukow, Nashville; (2/5) Betty Mayberry, Gallatin; (2) Francille Whitworth, Murfreesboro; (3) *Pat Tyree, 6329 Mapledale Lane, Brentwood, TN 37027; (4) Melanie Massa, Nashville

Smoky Mountain Mathematics Educators' Association #278, $5 ●

Upper East Tennessee Council of Teachers of Mathematics #315, $10
(1/2) *Hattie Kilgore, 2805 Sumpter Drive, Johnson City, TN 37604; (3/4) Robert Howard, Briston; (6) Linda Waldron, Briston

Multstate

Red River Council of Teachers of Mathematics (Arkansas, Texas) #382, $5
(1) Amy Phillips, Texarkana; (2) *Regina Houff, Route 13, Box 403, Texarkana, TX 75501; (3) Jamie Ashby, Texarkana; (4) Dr. Arthur Simonson, Texarkana; (6) Debra Walsh, Wake Village

Southern 2B

Oklahoma

Oklahoma Council of Teachers of Mathematics #016, $7.50
(1) Jackie Boyce, Lawton; (2) *Larry Hesler, 2615 N Park Circle, Stillwater, OK 74075; (3) Jane Hammontree, Sapulpa; (4) Debbie Blue, Shawnee; (5) Richard Weir, Yukon; (6) Jan Sands, Oklahoma City

Central Oklahoma Association of Teachers of Mathematics #297, $5
(1) Gloria Nan Dupree, Edmond; (2) *Francis Foster, 7337 North West 26th Street, Bethany, OK 73008; (3/4) Mark Woodward, Del City; (5) Barbary Keith, Oklahoma City

Southwest Oklahoma Teachers of Mathematics #367, $10 ●

Tulsa Council of Teachers of Mathematics #025, $10
(1/2) *Sandie Wyman, 7001 South 32rd West Avenue, Tulsa, OK 74132; (3) Terry Whisenhunt, Broken Arrow; (4) Stacey Oggendorff, Broken Arrow; (5) Jane Hammontree, Sapulpa; (6) Kelli Ball, Owasso

Texas

Texas Council of Teachers of Mathematics #102, $10
(1) Pam Alexander, Nacagdoches; (2) *Mel Adams, c/o Pam Alexander, Route 4, Box 5212, Nacagdoches, TX 75964; (3) Susan Cinque, Sugarland; (4) Paul Kennedy, New Branfels; (5) Dr. Kathy Mittag, San Antonio

Texas Association of Supervisors of Mathematics #169, $10
(1) Pamela Chandler, Missouri City; (2) *Jo Ann Whaeler, 7145 West Tidwell, Houston, TX 77092; (3) Sheila Cunningham, Houston

Alamo District Council of Teachers of Mathematics #112 , $10
(1) *Norma Torres-Martinez, 7605 Orland Park, #1, San Antonio, TX 78213; (2/5) Effie Mata, San Antonio; (3) Evelyn Trinidad, San Antonio; (4) Paula Gustafson, San Antonio; (6) Hilda Zamora, San Antonio

Austin Area Council of Teachers of Mathematics #205, $5 ●

Big Country Council of Teachers of Mathematics #212, $5 ●

East Texas Council of Teachers of Mathematics #203, $5
(1) *Betty Lorenz, Longview High School, Post Office Box 3268, Longview, TX 75606; (2) Rutledge Mc Claran, Marshall; (3) Marian Rainwater, Tyler

Fort Bend Council of Teachers of Mathematics #291, $8 ●

Fort Worth Area Council of Teachers of Mathematics #117, $5
(1/3/4) Veronica Meeks, Fort Worth; (2) *Aubrey Walker, 4712 Redondo, Fort Worth, TX 76118; (5) Betty Forte, Fort Worth

Greater Dallas Council of Teachers of Mathematics #998, $5
(1) Mark Mrozek, Dallas (2) *Irwin Ozer, 2705 Barlow Court, Plano, TX 75025; (3) Donna Costello, Plano

Greater El Paso Council of Teachers of Mathematics #171, $8
(1) Ullrich Reichenbach, El Paso; (2) *Joan Huseth, 4851 Excalibur Drive, El Paso, TX 79902-1258; (3) Linda Suciu, El Paso; (4) Robert Bigler, El Paso

Gulf Coast Council of Teachers of Mathematics #213, $8 ■

Houston Council of Teachers of Mathematics #091, $5
(1/2) *Shirley K. Ward, 7603 Barberton, Houston, TX 77036; (3) Jacqueline Y. Phillips-Haynes, Houston; (4) Frank Salinas, Houston; (5) Rosetta Cerf, Humble

Panhandle Area Council of Teachers of Mathematics #364, $10 ●

Rio Grande Valley Council of Teachers of Mathematics #182, $5 ●

San Angelo Council of Teachers of Mathematics #118, $5
(1/2) Donna Middlekauf, San Angelo; (3) Grady Roe, San Angelo; (6) *Tracey Haddick, Lakeview High School, 900 East 43rd, San Angelo, TX 76901

San Jacinto Area Council of Teachers of Mathematics #206, $10 ■

Spring Branch Council of Teachers of Mathematics #123, $5
(1) Denise Nygard, Houston; (2) *Kathy Menotti, 527 Ashford Forest, Houston, TX 77079; (3) Sara (Jane) Short, Brookshire

Texas South Plains Council of Teachers of Mathematics #345, $10 ●

Trinity-Brazos River Valley Council of Teachers of Math #302, $6 ■

West Texas Frontier Council of Teachers of Mathematics #311, $5 ▲

1960 Area Math Council (Texas) #275, $5
(1) Alyssa Howell, Humble; (2/4) *Allison McCulloch, 16422 Willowbank, Tomball, TX 77375; (3) Nancy Gause, Katy; (5) Arthur Howard, Houston

Multistate

Texoma Council of Teachers of Mathematics (Oklahoma, Texas) #348, $10
(1/4) *Martha Snowden, #7 Edgefield Court, Wichita Falls, TX 76302; (2) Kennetta Beshear, Wichita Falls; (3) Linda Fosnaugh, Wichita Falls; (6) Judy Moore, Graham

Western 1 Region

Alaska

Alaska Council of Teachers of Mathematics #263, $10
(1) Dick Sander, Homer; (2) *Pat Holman, 10370 Johnson Way, Juneau, AK 99801; (3) Kathie Maloney, Chugiak; (4) Pat Moye, Barrow; (5) Nanci Spear, Juneau; (6) Cheryl Girardot, Sitka

Arizona

Arizona Association of Teachers of Mathematics #080, $15
(1) Barbara White, Prescott; (2/5) *Wendy Diskin, 1633 North Garnet, Prescott, AZ 86303; (3) Linda Boland, Scottsdale; (4) Anne Marie Howe, Mesa; (6) Debi Schmidt, Prescott

Colorado

Colorado Council of Teachers of Mathematics #084, $15
(1) *Christine Delaney-Haynes, Post Office Box 207, Placerville, CO 81430; (2) Eileen Rogers, Colorado Springs; (3) Lisa Mesple, Berthoud; (4) Arlene Mitchell, Greeley

Idaho

Idaho Council of Teachers of Mathematics #140, $15
(1) Robert G. Firman, Boise; (2) *Jan Davore, 344 N 5th Street, Payette, ID 83661; (3/5) Rosemary Stastny, Boise; (4) Sharon Walen, Boise; (4) Kathy Harris, Caldwell

Montana

Montana Council of Teachers of Mathematics #195, $15
(1/2) *Terri Goyins, 2705 Fairway Drive, Bozeman, MT 59715; (3) Dean E. Preble, Forsyth; (4) Terri Lynn Dahl, Great Falls; (5) Gary Bauer, Bozeman

Nevada

Nevada Mathematics Council #387, $15 ●

Northern Nevada Mathematics Council #317, $40
(1) Mary Wilson, Reno; (2) *Linda Aaquist, 4340 Acadia Way, Reno, NV 89502; (3) Betsy Sweeney, Reno; (4) Chuck Quiricani, Reno; (4) Tony Filicchia, Sparks; (6) Maureen O'Mara, Reno

Southern Nevada Mathematics Council #124, $10
(1) Kim Loomis, Henderson; (2) *Mark Schumn, 617 Indian Row Court, Henderson, NV 89015; (3) Candace Yamagata, Las Vegas; (4) Bob Greer, Henderson; (5) David Thiel, Las Vegas

New Mexico Council of Teachers of Mathematics #142, $10
(1) *Carole Zibert, 302 Rincan de Romos, Rio Rancho, NM 87124; (2) Lisa Quintis, Organ; (3) Vicky Kauffman, Albuquerque

Albuquerque Council of Teachers of Mathematics #198, $5
(1) Joyce Fisher, Albuquerque; (2) *Terry Palmer, 3512 Anderson Avenue, SE, Albuquerque, NM 87106; (3) Ronda Davis, Albuquerque; (4) Debbie Barreras, Albuquerque; (6) Heidi Steurenberg, Albuquerque

Utah Council of Teachers of Mathematics #089, $10
(1) Sherry Zobell, Centerville; (2) *Kristen Whoolery, Box 277, Mendon, UT 84325; (3) Karil Johnson, Orem; (4) Valerie Chambers, Orem

Wyoming Council of Teachers of Mathematics #281, $10
(1) Sandra Gothard, Cheyenne; (2) *Anna Dean Fugere, Post Office Box 1175, Glenrock, WY 82637; (3) Kirk Lupten, Laramie; (4) Cyndi Moravek, Shoshoni; (6) Stephanie Luther, Lander

Multistate

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Western 2 Region

California

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California Mathematics Council, Central Section #157
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California Mathematics Council, Northern Section #181
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California Mathematics Council, Southern Section #158
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California Mathematics Council to the Far North #307, $10
(1) Melody McGuire, Eureka; (2/5) *Stuart Moskowitz, Post Office Box 423, 3386 Old Arcata Road, Bayside, CA 95524; (3) Lynn Teasley, Bayside; (4) Greg O'Leary, Eureka

Greater San Diego Mathematics Council (California) #155, $8
(1/2) *Bill Bokesch, 9697 Saskatchewan Avenue, San Diego, CA 92129; (3) Nick Bohl, San Diego

Imperial County Mathematics Council (California) #389, $10 ●

Los Angeles City Teachers' Mathematics Association (California) #156, $8
(1) Lorrie Freedman, Glendale; (2/3) *Shirley Roberts, 8125 Redlands Street, #106, Playa del Rey, CA 90293-8259;(4) Dick Vinetz, Encino

Mathematics Council, California Central Coast #239, $10 ▲

Mount Lassen Mathematics Council (California) #267, $10
(1) Jackie Kwate, Orland; (2) *Dan Sours, 1785 Estates Way, Chico, CA 95928; (3) Lisa Sandberg, Red Bluff; (4) Carol Cumming, Redding

Orange County Mathematics Council (California) #349, $10 ■

Riverside County Mathematics Teachers Association of California #242, $10
(1) Sharon Taylor, Redlands; (2) *Rebecca Kallinger, 4203 Allis Place, Riverside, CA 92501; (3) Judy Lloyd, Yucapia; (4) Liz Sciolla, Corona; (5) Ed D'Souza, Riverside

Sacramento Area Mathematics Educators #334, $10
(1/2) Chris Borris, 9524 Flintridge Way, Orangevale, CA 95662; (3) Dawn Pace, Newcastle; (4) Kumari Hudson-Bates,Davis

San Bernadino County Mathematics Council #355, $5 ■

San Francisco Mathematics Teachers Association #249, $5
(1/3) Marilyn Noda Swartz, San Francisco; (2) *Sandy Siegel, 24 Irving Street, San Francisco, CA 94122; (4) Leslie Dietiker, Alameda; (5) Michael Serra, San Francisco

Santa Clara Valley Mathematics Association (California) #167, $10
(1/2) *Steve Headley, 1955 Alford Avenue, Los Altos, CA 94024; (3) Dan Hall, Santa Clara; (4) Karl Ting, Belmont; (4) John Nakahoma, Mountain View

Sonoma County Mathematics Council #346, $5
(1) *Rick Hill, 7650 Isabel Avenue, Cotati, CA 94931 (2) Rick Marks, Rohnert Park; (3) Bill Spence, Sebastopol

Stanislaus Mathematics Council #288, $10
(1) Nancy Scheer, Modesto; (2) *John Leamy, 18081 Bonanza Drive, Twain Harte, CA 95383; (3) Dorothy Kosiewicz, Modesto; (4) Richard Schaff, Turlock; (6) Carol Vieira, Modesto

Ventura County Mathematics Council #271, $10
(1) Katie Weldon, Ventura; (2) *Jerry Neidenbach, 3664 Field Crest Court, Thousand Oaks, CA 91360; (3) Terrie Romines, Camarillo; (4) Michael Hunt, Oxnard; (5) Bev Rueckert, Camarillo

Hawaii

Hawaii Council of Teachers of Mathematics #144, $15
(1) Karen Fujishima-Lee, Kailua; (2) *Shari Holder, 2159-B Atherton Road, Honolulu, HI 96822; (3) Andrew Astromoff, Honolulu; (4) Susan Barton, Laie

Oregon

Oregon Council of Teachers of Mathematics #052, $15
(1) Jim Specht, Hillsboro; (2) *Cathy Bernhard, 7250 Southwest Brenne Lane, Portland, OR 97225; (3) Chuck Peterson, Halfway; (4) Anne McEnerny-Ogle, Vancouver; (4) Tom Swanson, Portland; (5) Sharon Dawson, Portland

Washington

Washington State Mathematics Council #110 , $15
(1) *Dr. Karen Cockburn, 5204 East Granite Point Drive, Spokane, WA 99212-0342; (2) Joan M. Rizzuti, Ellensburg; (3) Dennis Anderson, Redmond; (4) Ken Marks, Tacoma; (5) Judy Anderson, Bothel

Puget Sound Council of Teachers of Mathematics #106, $10
(1) Allison Harris, Seattle; (2) *Joani Harr, 367 Prospect, Seattle, WA 98109; (3) Royal Penewell, Marysville; (4) Art Mabbott, Woodinville; (4) Sandra Pratt, Velm; (5) Janet A. Kelly, Bellevue; (6) Margie Sussex, Bellevue

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How to Join an Affiliated Group (AG)

1. Send a check, payable to the AG you want to join, to the primary contact listed for the AG.
2. Complete this form to include in your mailing (or include the information on separate paper).

Name and charter number of the Affiliated Group you want to join:

_____

_____

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Tel. (Work) _____

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_____

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- Networking, leadership, and volunteer opportunities
- Toll-free Fax-on-Demand services for Council information
- A Web site (www.nctm.org) with information about the Council, upcoming events, and hot topics in mathematics education
- Online Classifieds, an advertising service for job listings (with free position-wanted listings for members) and mathematics-related announcements
- Reduced rates for group health and life insurance plans (for U.S. residents only)
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Help others enjoy these great benefits while at the same time strengthening NCTM's work in improving mathematics education. Tell a friend today about NCTM and how to apply. NCTM membership makes a thoughtful gift for your colleagues as well. Gift certificates ($10 and up) are also available. Individual membership with one journal subscription costs only $57 a year. To order a gift certificate or membership, call toll free, (800) 235-7566.

Visit NCTM on the Web

www.nctm.org

The Apex award–winning NCTM Web site offers numerous mathematics and membership resources delivered right to your desktop. Here's just a sampling of what you will find:

- Updates on, and links to, the latest news and reports in mathematics education
- Reports on federal activities from NCTM's government relations specialist
- Online Classifieds, an advertising service for job listings and mathematics-related announcements
- Conference and annual meeting information, including dates, downloadable forms, and the programs as they become available
- NCTM general information, including position statements, important dates, and a link to the full text of the *Curriculum and Evaluation Standards*
- Membership information, including how to sign up and how to get involved
- Excerpts from NCTM journals and the *News Bulletin*
- The full NCTM Educational Materials and Products Catalog

The site is updated frequently, so check back often!

You Are NCTM—How to Get Involved

Besides great benefits such as publications and conferences, NCTM gives you many opportunities to share your expertise with other mathematics educators and the public and to help improve mathematics education for all students. Here are just a few of the ways you can get involved. Often, related documents are available from NCTM's Fax on Demand service (800-220-8483). They are noted with "FoD" followed by the document's number. For more information on the Fax on Demand service, see page 36 of this *Handbook*.

- Nominate a colleague or yourself to serve on an NCTM committee. Committees, listed on pages 19–22 of this *Handbook*, do important work for the Council on everything from advising the Board of Directors on policy to publishing to conference planning. Committees usually meet several times a year at different locations around the country. See the October *News Bulletin* for nomination instructions.
- Nominate a colleague or yourself to run for a position on the NCTM Board of Directors or for NCTM president. Send nominations (include the nominee's address and telephone number as well as special expertise and experience in mathematics education) to Elizabeth Phillips, Department of Mathematics, Michigan State University, East Lansing, MI 48824.
- Write articles for the NCTM journals. You can write a letter to the editor, a short piece for one of the departments, or a full article. See recent issues of the journals for the style and format of articles. General manuscript guidelines are available on NCTM's Web site, www.nctm.org/publications; by phone (703) 620-9840, ext. 2165; e-mail at journals@nctm.org; and FoD #801 for the school journals and FoD #802 for the *Journal for Research in Mathematics Education*. Call to discuss your idea if you like.
- Write for the NCTM publications program. Each year, NCTM publishes a yearbook plus other books. Manuscripts for chapters are regularly sought. Book manuscripts are welcome on an ongoing basis. See the NCTM Web site www.nctm.org/publications for the yearbook guidelines and current calls for manuscripts, or call (703) 620-9840, ext. 2157; e-mail pubs@nctm.org; FoD #851 for the 2000 Yearbook guidelines and FoD #850 for guidelines for other nonjournal materials.
- Review and comment on the *Standards 2000* project draft, *Principles and Standards for School Mathematics,* available in October 1998. See the October *News Bulletin* for details.
- React to *Mathematics Education Dialogues*. This new publication explores controversial topics in mathematics education and encourages reader responses. Look for *Dialogues* with the November 1998 and March 1999 *News Bulletins*.
- Speak up for mathematics education to legislators. Policymakers on the local, state, and federal level can affect funding for mathematics education and teachers' professional development. Communicating with your representatives or forming an advocacy group to do so can make your voice heard. You can learn more about affecting legislative and public policy issues at NCTM's first Legislative Conference to be held in Washington, D.C., 8–9 March 1999. For more information on the conference or legislative advocacy in general, contact NCTM's Communications Department at (703) 620-9840, ext. 2107.
- Volunteer at NCTM meetings and conferences. Volunteers help with everything from hospitality to publicity to extended sessions. Contact NCTM Conference Services at (703) 620-9840, ext. 2143, or e-mail annlmtg@nctm.org for information on annual meetings and regconf@nctm.org for information on regional conferences. FoD #450 (for annual meeting volunteers)
- Preside at sessions at the annual meeting. Presiders—people who assist speakers with handouts and other activities during sessions—are needed for each annual meeting. It's a great way to become involved with a session and help the meeting run smoothly. Contact NCTM Conference Services at (703) 620-9840, ext. 2143, or e-mail presider@nctm.org for more information. FoD #460.
- Present sessions at NCTM meetings and conferences. An NCTM annual meeting features more than 1000 sessions covering all grade levels and a wide range of topics. Speaker proposals are typically due 14 months prior to the annual meeting. Regional meetings typically feature several hundred sessions. FoD #455 for annual meeting and #425 for regional conferences.
- Join an NCTM Affiliated Group to get involved at your local level or in a specific aspect of mathematics education. See page 32 of this *Handbook* for an application form.
- Participate in the World's Largest Math Event, held annually at the end of April, with your students and your school. The next event will be 30 April 1999. Watch upcoming *News Bulletins* for more information.
- Join a discussion on the Web. Visit NCTM's Web site, www.nctm.org, regularly. Often you can find discussion questions posed on a variety of topics. Your input makes a difference.

NCTM Calendar

National Metric Week
4–11 October 1998

Mathematics Education Month
April 1999

World's Largest Math Event 5
30 April 1999

Annual Meetings

NCTM's 77th Annual Meeting
San Francisco, Calif.
22–24 April 1999

NCTM's 78th Annual Meeting
Chicago, Ill.
13–15 April 2000

NCTM's 79th Annual Meeting
Orlando, Fla.
5–7 April 2001

Regional Conferences

Hartford, Conn.
15–17 October 1998

Louisville, Ky.
15–17 October 1998

Calgary, Alta.
23–24 October 1998

Little Rock, Ark.
29–31 October 1998

Reno, Nev.
11–13 November 1998

Charlotte, N.C.
4–6 February 1999

Des Moines, Iowa
11–13 February 1999

Great Falls, Mont.
4–6 March 1999

Honolulu, Hawaii
27–30 July 1999

Boise, Idaho
7–9 October 1999

Pittsburgh, Pa.
13–15 October 1999

Topeka, Kans.
11–13 November 1999

Phoenix, Ariz.
2–4 December 1999

El Paso, Tex.
27–29 January 2000

Mobile, Ala.
16–18 March 2000

Halifax, N.S.
20–22 July 2000

Philadelphia, Pa.
12–14 October 2000

Affiliated Group Leadership Conferences

Eastern Region
Washington, D.C.
5–7 March 1999

Southern Region 1
Orlando, Fla.
19–21 March 1999

Southern Region 2
Oklahoma City, Okla.
26–28 March 1999

Western Region
Las Vegas, Nev.
14–16 May 1999

Central Region
Louisville, Ky.
17–19 June 1999

Canadian Region
Toronto, Ontario
July 1999 (date TBD)

Mathematics Education Trust

Grants are available to enhance your professional growth!

The Mathematics Education Trust (MET) was established by the National Council of Teachers of Mathematics (NCTM) to support the improvement of mathematics instruction through grants or awards to individuals, to groups of individuals, or to schools. Members of the NCTM can nominate candidates for the Lifetime Achievement Awards. The other seven grants are awarded competitively from proposals submitted by individual applicants. For additional information or an application: dial NCTM's toll-free Fax on Demand (FoD) service at (800) 220-8483 and request document #501; call the NCTM at (703) 620-9840, ext. 2113; or e-mail infocentral@nctm.org.

1999–2000 applications must be received by 1 December 1998.

2000–01 applications will be available in March 1999 and due 1 December 1999.

Grants and Awards Available

- **NCTM Lifetime Achievement Awards for Distinguished Service to Mathematics Education** are designed to honor NCTM members who have exhibited a lifetime of achievement. NCTM members who wish to nominate candidates should request procedural information from Dept. I at NCTM. Completed nomination packets are due by 1 December 1998. (FoD doc. #509)
- **Clarence Olander Grants for In-Service Training** are given to elementary school staff. Up to two elementary schools are selected each year for awards of up to $2000 each. (FoD doc. #502)
- The **Dale Seymour Endowment Fund** provides up to $2000 scholarships to K–12 teachers for improving their mathematics background to provide in turn better mathematics instruction to their students. (FoD doc. #503)
- **Ernest Duncan Scholarships** of up to $2000 are granted to teachers working at the grades K–6 level to improve their own professional competence as classroom teachers of mathematics. (FoD doc. #504)
- The **Mary Dolciani Scholarships** of up to $2000 are granted to teachers working at the grades 7–12 level to improve their own professional competence as classroom teachers of mathematics. (FoD doc. #507)
- **Future Leaders Annual Meeting Scholarships (FLAMeS)** fund up to $1000 in travel, subsistence expenses, and substitute-teacher costs for full-time K–12 teachers (for elementary, middle, and high school levels) who have never attended an NCTM annual meeting and who are NCTM members to attend the San Francisco, California, Annual Meeting in April 1999. (FoD doc. #505)
- Funded by the E. Glenadine Gibb Endowment Fund, **Implementing NCTM Standards in Your Own Classroom Awards** of up to $2000 are provided to teachers of grades K–12 to develop a plan that implements some aspect of the NCTM *Standards*. (FoD doc. #506)
- Funded by Toyota Motor Sales, U.S.A., Inc., a maximum of 35 grants up to $10 000 each are awarded to K–12 teachers (or teacher teams) for innovative teaching projects. **Toyota's Investment in Mathematics Excellence (Toyota TIME)** projects incorporate creative ideas that require resources beyond those ordinarily available to teachers; grants are allocated over a two-year period. *Note:* Toyota TIME applications will be accepted at NCTM until 12 January 1999. The 2000–01 application process will be announced later in 1999. (FoD doc. #508)

Tax-deductible contributions in support of these grants and awards may be sent to NCTM's Mathematics Education Trust at NCTM's Headquarters Office.

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NCTM Headquarters Office

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For telephone inquiries, enter the appropriate extension when you hear the recorded greeting at the main telephone number, or if you are not certain which extension to request, wait a moment until the receptionist answers the line.

To e-mail specific headquarters staff members, type the first initial of their first name and their full last name (non–case sensitive) followed by @nctm.org. Example: Mary Smith would be msmith@nctm.org

Other Helpful Telephone Numbers

Fax on Demand (available 24 hours a day) . . . . . (800) 220-8483
Toyota TIME Grant Information . . . . . (888) 573-TIME
Austin Travel, NCTM's Official Travel Agency (member reservations) . . . . . (800) 291-NCTM

NCTM's Fax-on-Demand Information Service

(800) 220-8483

NCTM's Fax on Demand service provides free instant access to NCTM information, forms, and other documents 24 hours a day, 7 days a week. All you need is a Touch–Tone telephone and a fax machine.

For a list of documents available through Fax on Demand, see NCTM's Web site, www.nctm.org (under "About NCTM") or call the Fax on Demand number (800-220-8483) and request the document index at the recorded prompt. Then follow the prompts to enter your fax number, and the index will be faxed to your machine shortly. Once you've selected the documents you need, simply call back and follow the prompts.

Fax on Demand includes resources in the following categories:

- Membership/General Information
- *Standards*/Mathematics Education Resources/Position Statements
- NCTM Conventions and Conferences
- NCTM Grants—Information and Applications
- Affiliated Groups
- Advertising/Exhibits/Marketing
- Publications